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# THE DEVELOPMENT OF A GROSS MOTOR PLAYGROUND RATING SCALE FOR THREE- AND FOUR-YEAR-OLD PRESCHOOLERS

BY

BARBARA JOAN PAUL

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

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Date: June 12, 1985

## ABSTRACT

The purpose of this study was to develop, implement and evaluate a gross motor screening device for use by day care professionals with three- and four-year-old preschoolers.

A descriptive graphic rating scale was selected and designed to include both Frequency and Confidence Scales. The setting chosen was the playground.

A total of 36 raters from six day care centres rated a maximum of nine children each, for a total of 116 subjects. A training session and observational period were required before the Preschool Playground Motor Skills Rating Scale could be filled out. Other data collection instruments were used: Individual Playground Profile, Rating Scale Evaluation Questionnaire and Post-observational Interviews.

The results indicate certain pieces of playground equipment were most available and frequently used by the preschoolers. The children's performances on them received high interrater agreements. The overall confidence rating and the descriptors from the Individual Playground Profile provided beneficial information. The Post-observational Interviews revealed a heterogeneous group. There was a group of less-skilled preschoolers who were not performing gross motor skills adequately and required further assessment. The Preschool Playground Motor Skills Rating Scale was rated as easy to understand and use.

It was concluded that the screening device developed had been able to screen for preschoolers who needed further assessment in the gross

motor domain. Recommendations were made to improve the Preschool Playground Motor Skills Rating Scale and the Individual Playground Profile and also for further research.

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# CHAPTER I

## INTRODUCTION

Our society assumes that all preschool children are motorically active and that they participate enthusiastically in gross motor activities (Halverson, 1966). The opening sentence in Wickstrom's book, Fundamental Motor Patterns (1977) illustrates this view: "Where there is life, there is movement; where there are children, there is almost perpetual movement" (p.1). Due to their newly acquired ability to move about on their own, preschoolers show a tremendous eagerness to explore. This enthusiasm to experiment propels them to investigate everything: to see, touch, hear, feel, know, and taste as much as they possibly can. They display a great deal of energy and determination as they strive to get to know their environments. Normally, this drive motivates preschoolers to try new gross motor skills and practise them with the utmost perseverence and patience. Through free play they continue to explore and practise their new skills and thus, begin to learn about their own capabilities.

For various reasons some preschoolers do not develop adequate competency in the basic gross motor skills necessary to carry out this inherent enjoyment of exploration. Social class, sex, birth order and ethnic group all play a role in the motor development of preschoolers (Herkowitz, 1981; Malina, 1981; Gallahue, 1984). Preschoolers' abilities to satisfactorily perform age-expected motor tasks are

obviously affected by such factors as deprivation of experiences and restricted opportunities to practise (Lockhart, 1981). Low birth weight, prematurity, rate of growth as well as body size can contribute to inadequate preschool motor skill competency (Espenchade & Eckert, 1980).

Although the causes and influences which affect preschool gross motor skill development are well known and documented, little research has been conducted to detect and give remedial help to those preschoolers who do not adequately perform gross motor tasks. Regretfully, once the developmental milestone of walking occurs, the gross motor skills of preschoolers are almost forgotten as they are assumed to be motorically very busy and active, when in fact, some are not.

There are many factors which contribute to the difficulty of identifying the gross motor movement problems of three- and four-year-old preschoolers. Up until recently, this age group of children was kept at home and therefore, was not very accessible to researchers for study. Now, with more preschool children attending day care, nursery school and playschools, they are being reached, studied and researched more easily. Although these children are now more accessible, there are other difficulties which inhibit early screening and identification.

Firstly, the wide bandwidth in the rate of normal development allows for a greater tolerance of a broad range of abilities. Genetic and environmental factors account for much of these individual differences, and, thus, there can be no clear line drawn between

"normal" and "abnormal" (Illingworth, 1972; McMath, 1980). However, Dare and Gordon (1970) comment that "it is no longer acceptable" to use the phrase 'could do better if he tried' to describe a child's gross motor performance "unless an adequate assessment has been carried out" (p.181). The findings of Silva et al. (1982) suggest that gross motor delays in preschool children should not be ignored but that further research is necessary to learn the specific skills that could predict current and future gross motor problems.

A concomitant problem, developmental "lag" or delay, arises from the above. All too often, some parents and professionals categorize certain preschoolers as "late" or "slow" developers who will "catch up." This assumption has hindered detection and possible amelioration of these children; the question is, "do they grow out of it or catch up?" Research by Silva & Ross (1980) suggests that some do while others do not. As developmental delay is a multifactorial problem which is not clearly understood, there can be no simple and straightforward answers or solutions (Taylor & McKinlay, 1979). There is also need for caution in prematurely labelling preschoolers with suspected early delays in gross motor development (Silva & Ross, 1980). However, awareness that this reasoning can hinder a more careful examination of these "slow" gross motor developers will aid in discovering if they do, in fact, "catch up." Again, further research is required on this question.

Another factor, the cuteness of preschoolers (Paul, 1985), is a problem faced in attempting to identify children with movement problems during the preschool years. As preschoolers are appealing and cute, lots of leeway is provided for unique behaviour and mannerisms. For

example, seeing a young child walking pigeon-toed is not always a cause for concern as it often elicits the response, "Oh, isn't that a cute way to walk!" This factor protects preschoolers from further scrutiny, often preventing adults, parents in particular, from viewing their gross motor skills objectively.

There has, however, been considerable research conducted on school-aged children who do not develop adequate competency in movement skills. They have been called "clumsy" (Gordon and McKinlay, 1975; Gubbay, 1975a) or "physically awkward" (Wall, 1982). Wall defines physically awkward children as those "without known neuromuscular problems who fail to perform culturally normative motor skills with acceptable proficiency" (p.254). Wall (1982) further clarifies his definition by stating that culturally normative skills are those which "are generally used within a specific culture by a large majority of people" (p.254). He states that acceptable proficiency will vary according to the age, sex and socio-cultural environment of the individual and be greatly influenced by the standards of peers, siblings, parents and teachers.

Based on data collected on school-aged children, researchers (Gubbay, 1975b; Keogh, 1968; Stott et al., 1972; Taylor, 1982) have placed the incidence of physical awkwardness in the population in the range of 6 - 11%. In further research by Keogh et al. (1979), they state the incidence in the population to be 5% or higher. Taylor's study (1982) also confirmed the research of Gubbay (1975b) that there is no significant interaction between sex and physical awkwardness.

Illingworth (1968), Reuben and Bakwin (1968) and Gordon and McKinlay (1975) note that motor problems discourage children from participation in sports and that this may lead to emotionally difficult situations for them. Because gross motor activities are readily observable, children, who do not perform them well, often develop ways to mask their lack of skill (McKinlay, 1978; Wilson, 1978). These children try to avoid participation at all costs, often missing physical education class, not using the playground and especially, not playing in game situations. Some other coping strategies which they often employ to draw attention away from their skill deficiencies include behaving aggressively, or even, acting silly in class and faking injury and/or illness.

In the past, for various reasons, traditional identification methods, mainly norm-referenced testing, have failed to tap adequately the three- and four-year-old child's gross motor domain. There was very little ecological validity in the tests as the results failed to indicate whether the child could play adequately with his/her friends nor did the individual motor performance tests realistically measure the task demands placed on a child in everyday life. Examination of the administrative structure of each instrument reveals several of the following problems: the testing time expected for each child is long and thus time-consuming; special equipment is required; the test is administered by a stranger, often obtrustively in a foreign environment on skills which are isolated from their normal context; there is variability in the degree of expertise required by observers; and scoring is very often quantitative. The prescriptive value of each

motor assessment is difficult to determine as appropriate remedial skills do not immediately follow from these assessments. Criterion-referenced testing certainly answers some of the above concerns but fails to provide qualitative information about how the tasks are performed or how to record environmental changes (Wade, 1984).

With the above ideas as background, it was decided that an important first step in the identification of physically awkward children during the preschool years would be to develop a simple observational rating process which might effectively screen preschoolers requiring further assessment and evaluation of adaptive physical education professionals. It was also recognized that research was required on the degree to which day care professionals might be involved in this process. After studying the day care environment, it was concluded that one of the most effective ways in which to identify preschoolers who were "at risk" in the gross motor development area, was on the local playground regularly used by the children in each day care. Thus, a screening device was designed to measure the skill of children on various pieces of playground equipment commonly available on the City of Edmonton playgrounds. In addition to specific skill information collected by the playground rating scale, it was decided to collect added information about the general gross motor skill level, gross motor confidence, and enjoyment of physical activity of the preschool children based on the opinions of day care professionals.

## Statement of the Problem

To develop, implement and evaluate a preschool screening device for use by day care professionals in the screening of three- and four-year-old preschoolers for physical awkwardness.

## Sub-problems

1. What playground equipment is most available and most used by preschoolers?
2. Can day care professionals accurately rate the gross motor performances of preschoolers?
3. Are there differences in the accuracy of the ratings on the different pieces of playground equipment?
4. How do day care professionals assess the use of the Preschool Playground Motor Skills Rating Scale?
5. Can a supplementary screening device provide additional information that is useful to the screening process?
6. Can the identification process be enhanced by anecdotal data collected from interviews with day care professionals?
7. Can a group of preschool children be identified as requiring further gross motor assessment based on the ratings of their performances on the Individual Playground Profile and the Preschool Playground Motor Skills Rating Scale?

Delimitations

The number of day cares sampled was restricted to those which were municipally-approved by the city of Edmonton and which utilized a City of Edmonton playground on a regular basis.

The children selected were only those who were born between March 1, 1979 and February 28, 1981 attending one of the sampled day cares. The number of subjects was further restricted by fixing a maximum number of children to be rated by one rater at nine.

Only day care professionals who were employed by the selected day cares and who worked on a daily basis with the sampled preschoolers were included in this study.

The observational guidelines placed restrictions upon the rating process. The guidelines stipulated that observation take place during the first 20 minutes at the playground and that the staff continue with their regular duties while doing so. Also the observational period was set at three weeks so as to provide raters with sufficient time to observe their subjects before rating them. The recording of the ratings took place after this period and occurred only once so as to minimize sensitizing effects on the raters and their ratings.

The types of playground equipment were restricted to those which were most commonly used and found on the City of Edmonton playgrounds.

As summer holidays cause considerable fluctuation in attendance for both the staff and the children, Post-observational Interviews were conducted during the last two weeks of June and the first week of July, 1984.

Limitations

The most serious limitation affecting this study was the weather. During the months of May and June, 1984, Edmonton experienced an exceptionally wet spring. As a consequence, the observational period had to be extended for as much as three weeks. Thus some of the benefits of the training session could have been lost.

Availability and variability of playground equipment in the City of Edmonton playgrounds created limitations. Some of the equipment listed on the screening device firstly, was not always present at the day care's local playground and secondly, had many variations in height, width, texture, materials and state of repair.

# CHAPTER II

## A SELECTIVE REVIEW OF THE LITERATURE

### Introduction

As discussed in the previous chapter, the purpose of this study is to develop, implement and evaluate a preschool gross motor screening device. In order to initiate this task, a selective review of the literature will be presented. The review will be presented under the following four sections: Preschool Screening, Day Care, Playgrounds, and Rating Scales. Under the heading, Preschool Screening, the issues and concerns of screening preschoolers, the availability of preschool gross motor screening devices, the most suitable environment to obtain realistic screening results and the choice of administrators for preschool screening devices will be discussed.

Day care settings can be very comfortable for young children; in fact, they can be so comfortable that the children perceive them as being just like home. This familiarity with the surroundings and caregivers makes the day care setting an excellent one for naturalistic observations. In addition, three- and four-year-old preschoolers are easily accessible to researchers in day care settings (Snow, 1983). Therefore, this environment may facilitate the observation and evaluation of children's development including their proficiency in gross motor skills. Thus, the second major heading in this review, Day

Care, will discuss the availability of day care spaces, outdoor space and gross motor programming guidelines and staff training requirements.

As outdoor gross motor programming includes regular visits to the local playground during the spring and summer, a discussion of the various types of playgrounds and how they can affect free play will be presented. The final section, Rating Scales, includes a review of the choice of rating scales and the factors that must be considered in their selection and use.

## Preschool Screening

### Introduction

Eaves and McLaughlin (1977) group seven methods of assessment into three categories. First, screening which includes informal consultation, structured interviews, inspection of prior data, and screening devices; second, clinical assessment which includes standardized tests, nonstandardized tests and observation systems; third, follow-up assessment which includes nonstandardized tests and observation systems. They labelled these assessment categories as "mush" (screening), "melon" (clinical assessment), and "rock" (follow-up assessment) to signify the accuracy of information that is gleaned by them.

Screening is the first step of the assessment process as it collects "estimates of the current status of the person or situation being assessed" (Eaves & McLaughlin, 1977, p.101). Its function as stated by Duffey et al. (1981), Evans and Sparrow (1975), and

Frankenburg (1975), is to identify all children who deviate sufficiently from "normal" to require further investigation but at the same time not including too many false positives. The terms "false positives" and "false negatives" are commonly used in the screening process. The following table from Mercer et al. (1979, p.53), helps to define and clarify these terms.

Table 1

Prediction-Performance Comparison Matrix

| | | Performance: Poor | Performance: Good |
|---|---|---|---|
| Prediction | Poor | Predicted to do poorly<br>Performed poorly<br>(Valid positive) | Predicted to do poorly<br>Performed well<br>(False positive) |
| | Good | Predicted to do well<br>Performed poorly<br>(False negative) | Predicted to do well<br>Performed well<br>(Valid negative) |

Screening Preschoolers: Issues and Concerns

In dealing with young children it is essential that decisions for further assessment be taken carefully and cautiously. Incorrectly labelling preschool children as being "at risk" can cause serious difficulties for them, simply because professionals and para-professionals tend to treat them differently and this can have negative

consequences for the children's development. Thus, great care must be taken in screening preschoolers to reduce the identification of false positives and to prevent the occurrence of a self-fulfilling prophecy (Kamuer & Jedrysek, 1982; Solnit, 1976). Solnit (1976) warns that if lower standards in the screening process occur, not only will an increase in the number of false negatives and false positives result, but administrators will be encouraged to find shortcuts to save time, money, and effort, and to cut back essential post-screening delivery systems. Therefore, it is important that the first step in the assessment process, screening, be as thorough and as accurate as possible.

Three- and four-year-old preschoolers present unique problems to the researcher interested in screening them. In some cases and situations this age group is the easiest to deal with, yet in others, they are the most difficult. Experienced preschool personnel have emphasized the difficulties in administering screening devices to preschool children that require the children to be tested over a long period of time and by a stranger. There are also problems in screening preschoolers in unfamiliar environments and on tasks that are isolated from their normal context.

As preschoolers are very sensitive to changes in their environment, preschool professionals suggest that screening, in order to reduce false positives, be as ecologically valid as possible (Gallahue, 1983). The setting or situation should be familiar so that the preschooler can perform within as natural a context as possible. This familiar setting

is more likely to elicit a normal range of responses than an unfamiliar one (Smith & Connolly, 1980). This also helps to ensure that the children are performing skills that they use in their environment, providing ecological validity to the screening results. It also reduces the novelty of the screening situation.

Preschoolers' attention span is much shorter than older children and adults; and thus, they tend not to concentrate for long time periods on one activity. Screening devices that are short and allow one to observe without interrupting the preschooler's performance, help to overcome this difficulty.

Preschool children are very aware of strangers (Connolly & Smith, 1972) and their reactions to them can hinder the screening process. Some preschoolers can become more interested in the stranger than in what they are supposed to be doing, while others react by not performing specified tasks when asked. The use of people whom preschoolers know can decrease the chances of preschool children reacting in these ways, thus ensuring more accurate screening data.

## Preschool Motor Screening

As motor skills are easy to observe at an early age, many standardized preschool screening devices such as the Gesell Developmental Schedules (Gesell, 1949), the Bayley Scales of Infant Development (Bayley, 1969), the Denver Developmental Screening Test (Frankenbury & Dodds, 1967), the Minnesota Child Developmental Inventory (Ireton & Thwing, 1972), and the McCarthy Scales of Children's Abilities (McCarthy, 1972) contain motor components within them. These devices

have traditionally been used to evaluate the developmental status of young children. Herkowitz (1977) critiqued the first three tests and concluded that the motor content in them was the least reliable and valid of all the components. She attributed these difficulties to the lack of knowledge the originators of these devices had about movement and concluded that "the reliability weakness of the motor content of these tests probably will not change until the influence of equipment and verbal, visual, and manual guidance on the motor behaviour of young children is investigated" (p.65). A tendency to use the subscale results from these devices for diagnosing selective impairments is common (Colligan, 1977; Silva & Ross, 1980).

The Dunedin Multidisciplinary Health and Development Research Unit is conducting a comprehensive, longitudinal study of 1000 three year olds and exemplifies this usage. In this study, to assess the gross motor domain of these children, the gross motor subscale of the Bayley Scales of Infant Development is used to assess the three year olds; furthermore, four year olds were assessed by a modified version of it. At age five and six, the Leg Co-ordination subtest of the McCarthy Scales of Children's Abilities was used (Silva & Ross, 1980). What is disconcerting here is that the researchers have taken these results not only to make statements about the gross motor performances of these children (Silva & Ross, 1980), but also to use them as the basis for continued research in the area (Silva et al., 1982; Silva et al., 1984). Unfortunately, no changes to the motor components of these screening devices has occurred since Herkowitz's 1977 statements. As a result,

many preschoolers are still being inaccurately assessed in the gross motor domain.

A more recent development in preschool screening has been the use of individual profiles. Two criterion-referenced profiles which are widely used are the Brigance Inventory of Early Development (Brigance, 1978) and the Preschool Developmental Profile (Brown et al., 1981). Preschoolers are directly and indirectly evaluated on the listed items several times a year by child care professionals and/or specialists. The major change from the norm-referenced screening devices previously mentioned is that the children are observed over time in their own environment. However, the content of the motor components has not significantly changed; in fact the motor subscales of the Gesell Developmental Schedules and the Bayley Scales of Infant Development have been used as the basis from which to develop them.

Specific motor tests such as the Lincoln-Oseretsky (Sloan, 1955), the Bruiniks-Oseretsky (Bruininks, 1978), the Test of Motor Impairment (Stott, 1972), the Charlop-Atwell Scale of Motor Co-ordination (Charlop & Atwell, 1980) and the Basic Gross Motor Assessment (Hughes & Riley, 1981) have been constructed to measure only the motor skills of children. Unfortunately, only the Bruininks-Oseretsky and the Charlop-Atwell are designed for use with three and four year olds. The primary focus of these two tests is to assess motor proficiency (Bruininks-Oseretsky) or motor co-ordination (Charlop-Atwell). Neither is concerned with the preschooler who is not performing motor tasks adequately.

There are no screening devices presently available that satisfactorily screen three- and four-year-old preschoolers for physical awkwardness. The Test of Motor Impairment and the Basic Gross Motor Assessment are concerned with identifying school-aged children who do not perform motor skills satisfactorily. As a result of this lack of screening devices, it is understandable that researchers often take the subscales of general developmental screening devices to assess the motor performances of preschoolers. However, this can lead to misleading results as has been previously mentioned.

Henderson (1984) reinforces this view by stating that she is concerned about the interpretation of the results obtained from formally assessing children under five years. As a result, when revising the Test of Motor Impairment (Henderson, 1984), she acknowledged the need for a suitable motor test for preschoolers but did not include items for preschoolers within it.

A number of questions emerge from the above discussion. Firstly, what environment encourages preschoolers to perform "naturally" so that the results will be indicative of their current functioning? Secondly, who are the best administrators of preschool screening devices and how should they gather the information?

## Observation in Naturalistic Settings

One screening method which encourages preschoolers to perform "naturally" is observation in naturalistic settings. Not only does it increase the ecological validity of the screening results, but also

provides ready comparison groups of children so that the preschoolers who require further evaluation can be more easily identified.

Smith (1974) states two reasons why three- and four-year-old preschoolers are easy to observe and they are important ones for this study. The first is that they often do not mind nor notice that they are being observed. The second is that preschoolers, especially, are natural in their behaviours as they have not learnt to be devious and fake their behaviours as an adult might under the same situation. Johnson and Bolstad (1973) cite studies by Barker and Wright (1955) and Polansky et al. (1949) which also support Smith's statements. They found that preschoolers were less self-conscious and as a result, less subject to the reactive effects of being observed than older children.

In two studies conducted by Connolly and Smith (1972) the reactive effects of a strange observer and also, an active observer were documented. Their results showed that the frequency of approaches to a strange observer varied between the different preschool environments: the nursery school having the least number, day care slightly more, and the residential children's homes considerably more. They also found that younger preschoolers showed a greater tendency to interact with the observer, regardless of whether he was passive or active. Lastly, they found that the more passive the observer, the faster the decline in the number of approaches that the preschoolers made.

Research by Barton and Brulle (1983) on staff and mentally handicapped students from an institution and a public school also support Connolly and Smith's (1972) first finding on the reactive effects of being observed. They found that these reactive effects

occurred at the residential institution but were negligible at the public school. Barton and Brulle conclude that the rapid acclimization to the observer was due to the fact that the staff and students at the public school were used to being observed while those in the institution were not.

The above studies have implications for the administration of preschool observational screening devices. Those which utilize obtrusive or active strangers have the potential problem, that the preschooler's performance may be reactive. This is especially true if observation only takes place once (Kazdin, 1979). Screening devices that require observation over a period of time lessen the probability of including too many false positives and false negatives. Lewko (1977) cautions that "initial performance is a poor predictor of subsequent performance" (p.95). Thus, screening devices that require plenty of observational time over a period of time reduce the likelihood of misidentification.

Administrators of Preschool Screening Devices

The administration of preschool developmental screening devices is most commonly done by pediatricians and other health professionals. Screening usually requires that the preschooler be brought to their offices for observation and testing. Recently there has been a shift away from using the highly trained specialist during the first step of the screening process. The primary benefit to the preschool screening process is that the children are being initially screened by the people

who know them best, their parents. This allows them to perform naturally and be observed in familiar surroundings. It also is an effective cost efficient measure as the specialists are using their expertise for preschoolers who need more detailed, follow-up assessments.

In order for parents to become involved in the initial steps of the screening process, new easily administered screening devices have been designed (e.g. Silva, 1981) and existing ones have been simplified (e.g. Frankenburg et al., 1976). The result has been the development of short-form screening devices, mainly using questionnaire format. They are based upon the parents' observations of their child's present developmental level and their perceptions and memory of their child's developmental history. They are quick to fill out, requiring thirty minutes or less to complete. Concerns about the reliability of parents as observers and the validity of these short-form screening devices are not expressed in the literature. Instead, support for the use of parental questionnaires as screening devices (Casey & Bradley, 1982), for parents as reliable observers (Frankenburg, 1976; Horowitz, 1972; Ireton & Thwing, 1972), and for the predictive validity of short-form screening devices (Silva, 1981) are found.

In screening school-aged children, teachers have recently been included in the preliminary stages (Gilberg et al., 1982; Henderson & Hall, 1982; Hicks et al., 1981; Keogh et al., 1979; Umansky, 1983). There are many similarities to the parental involvement in the preliminary preschool screening process. Data collection is through short-form screening devices that are administered easily and require

short recording time. Teachers also record their observations and perceptions of the child's current functioning. As more preschoolers are now attending day care, day care professionals find themselves in the same position as teachers to observe children's performances. In fact, some researchers (Henderson & Hall, 1982) feel that professionals working with young children have an advantage; in comparison to the school-aged children sitting most of the day in a classroom, preschoolers in day care are involved in a great deal of motor activity. As a result, day care professionals have an excellent opportunity to observe general motor performances of preschoolers. Thus, their observations can successfully aid in the first step screening procedures of preschoolers.

## Day Care

### Availability

In their annual report, Status of Day Care in Canada 1983, the Department of Health and Welfare defined the two main types of day care as follows: Centre Day Care as a licenced centre caring for groups of children; Family Day Care as a program whereby private families are selected and supervised by government or authorized private agency to provide child care during the day. In another study conducted by Clifford (1982), Day Care Spaces in Canada 1982 the Department found that 60% of Canada's day cares were centre ones. In the province of Alberta their research revealed that for two- to six-year-old children, there were 14,072 centre and 660 family spaces available.

During the early 1970's Canada experienced a rapid growth of day care spaces as an increase of women with young children entered the work force. Less demand for day care services occurred during the middle 1970's followed by another expansion in 1979 as community demands increased (Department of Health and Welfare, 1983). As more children left their homes to be cared for in day cares, they became more easily accessible to study by researchers. Most of the research done used centre day cares as they were considered to provide good child care (Snow, 1983).

In their updated report of 1982 for Alberta's Social Services and Community Health Department, Price Waterhouse Associates compared interprovincial full time day care spaces. They found that Alberta had the fourth largest birth to five year age group population. However, it ranked third in the number of available day care spaces. In fact, the province ranked first on a per capita basis with .081 spaces per preschool age child. In conclusion, Alberta has many day cares and the accessibility of young children makes them a good resource for the study of motor development.

Alberta's Outdoor Space Requirement

Alberta's outdoor space requirement is low when compared with other Canadian provinces (Price Waterhouse Associates, 1982). It is based on only 50% of the maximum number of children attending the day care. However, it should be noted that for children aged two to six years, there must be at least 4.5 square metres in outdoor space for each

child. These figures are quite low as Campbell (1975) recommends that day cares allocated 18.5 square metres per child or use the neighbourhood playground if it was close by.

The City of Edmonton states in its Day Care Policy Statement (1982), that the minimum outdoor playspace per child should be seven square metres and that it be situated near or adjacent to the day care centre. The City continued to expand its outdoor regulations by stipulating in its program requirements that, firstly, the children are to have the opportunity to play outside every day and, secondly, that the children must participate daily in indoor and outdoor gross motor activity.

Alberta's Staff Training Requirements

The requirements to work as a day care worker in Alberta are minimal, in fact, they are among the weakest in Canada (Price Waterhouse Associates, 1980, 1982). There are only two requirements: firstly, no staff can be less than 18 years of age and be solely responsible for children in a day care; and, secondly, only one staff member per day care need have first aid certification. The 1982 Manpower Study on Day Care Workers found that more than two thirds of Alberta's day care workers had no post secondary training. Of the remaining one third, only 13% of day care workers had an Early Childhood Diploma or equivalent qualifications.

In its 1982 Day Care Policy Statement, the City of Edmonton stipulated additional staff requirements in order for centre day cares to receive municipal approval and thus, be eligible for supplementary

funding. They were that the day care Director must have graduated from a post secondary program in Early Childhood Education or related field, and for each child care group there must be, firstly, a supervisor preferably with an Early Childhood Diploma, and, secondly, a full time assistant with formal or informal Early Childhood Training.

Snow (1983) in his survey of the research literature on day care and its implications for caregiving, found that the identification of criteria for determining quality day care was important. Caregiver qualifications ranked third in importance after group size and child/staff ratios. He found the research showed that staff, with post secondary education or training relevant to preschoolers, delivered better child care with increased developmental benefits for those children. Snow stated that the implications for administrators of recent day care research include the following; not only to hire staff with suitable education and relevant training but more importantly, administrators should take an active role in changing the child care regulations especially in the areas of group size, child/staff ratios and caregiver qualifications.

Price Waterhouse Associates noted that from their first report (1980) to their second (1982), Alberta had improved its standards in child/staff ratios and had created new regulations specifying maximum centre and maximum age group size. These changes in space requirements and child/staff ratios placed Alberta in a very favourable position when comparing it with the other provinces. Unfortunately, however, no changes were made to its staff training requirements.

## Playgrounds

An important part in the lives of children is playing at the local playground. Its easy accessibility and availability enable most children to use them frequently. This section discusses the different types of playgrounds that have been developed as well as factors affecting children's free play at the playground.

### Types

Traditional. Traditional playgrounds are the familiar ones with metal swings, slides, seesaws, monkey bars and merry-go-rounds. They are seen as serving the physical needs of young children although providing them with very little physical challenge (Edmonton Parks & Recreation, 1981; Hill, 1978). Traditional playgrounds are often viewed as being static as the materials adaptable for creative purposes are virtually nonexistent (Frost & Klein, 1979). Even though traditional playgrounds have been in use for well over eighty years, this fact alone does not explain the many serious injuries and deaths that have occurred to children using them (Henniger et al., 1982). Frost and Klein in their book Children's Play and Playgrounds discuss traditional playgrounds and playground hazards in the same chapter, concluding that "with few exceptions, (traditional playgrounds) are poorly planned, hazardous, unattractive and inappropriate to the broad developmental needs of children" (p.76). Very little change in respect to equipment and safety occurred until the late 1960's when creative playgrounds emerged (Henniger et al., 1982).

Creative. Creative playgrounds are designed and constructed by adults primarily utilizing such natural materials as water, sand, rubber and wood, in an attempt to nurture all aspects of a child's development (Edmonton Parks & Recreation, 1981; Alberta Recreation & Parks, 1982). Community involvement in planning and/or construction stages is the unique aspect of this type of playground (Frost & Klein, 1979). As a result, there are many different kinds of creative playgrounds, some with very unusual play equipment and facilities on them. In addition, the settings for them vary from small inner-city playgrounds to large community and school playgrounds in suburban areas. Also, as a consequence of their involvement in the planning and development stages, creative playgrounds are very popular with adults.

Sometimes communities have incorporated aspects from both the traditional and the creative playgrounds to produce a subgroup known as combination playgrounds. They usually provide metal swings from the traditional playground and wooden climbing structures from the creative playground. Beyond these, the types of equipment vary considerably from playground to playground.

Adventure. Adventure playgrounds are built by children under adult supervision. This provides the children the opportunity to "mold and shape the play environment: to tear it down and to start over again" (Frost & Klein, 1979, p.202). It is often labelled a "junk yard" by adults (Edmonton Parks & Recreation, 1981). Adventure playgrounds are extensively found in Denmark and England; North Americans have only just

begun to incorporate them into their outdoor play spaces (Frost & Klein, 1979). The City of Edmonton provides a type of adventure playground by running special day camps during the summer which utilize the river valley ravines.

Factors Affecting Free Play on Playgrounds

Playgrounds are viewed as encouraging the physical, creative and social development of children at all ages. However, very often playgrounds do not meet these objectives. The availability of the local playground has made it the single most commonly used recreational and play area for younger children (Alberta Recreation & Parks, 1982). It is, therefore, important to consider the factors affecting children's playground play and activity.

Children's play on the playground represents three major developmental thrusts to Sutton-Smith (1970). He stated that there were three clear facets to playground play. Firstly, there was exploration of new things; secondly, there was the testing of oneself in the physical environment; and thirdly, there was playing: the conversion of "novel images into the miniature world of clay, sand, trucks and tea parties" (p.13). Consequently, of primary importance to him when evaluating a playground is what provisions have been made for exploration, testing and play. In answering this question, Sutton-Smith placed strong emphasis on playgrounds to utilize protected and unprotected space. He stated that there was a need for a psychology of space when discussing the "grounds" of playgrounds for at different ages, children perceive space differently. They start by

differentiating it into protected space and unprotected space. By designing playgrounds with protected, cozy spots and unprotected, larger spaces, the developmental play levels of all children would be facilitated.

Sisk (1979) reviewed studies that suggested guidelines for developing play environments. Her conclusions were that novelty and complexity of play equipment and settings, time and available space were the four critical variables to affect children's playground play. Other variables that required further research as to their effects on enhancing and improving play were age differences, effects of density, type of equipment and leadership.

Wuellner (1979) stated that as children's play changes over time, variety in playground design and especially, playground equipment was of prime importance. Playground equipment, therefore, should vary in number, size, colour, position, height, texture and manipulability. Herkowitz (1978) advocated the need for developmentally appropriate equipment as it would cater to the wide range of individual gross motor differences found in young children. She listed three guidelines for accomplishing this objective. Firstly, by grouping equipment by type; secondly, by selecting equipment that young children could adjust to suit their own developmental level; and, thirdly, by providing individual pieces of equipment which afford different types of performance by children of various ages. Herkowitz cautioned that once designed, a playground should be continually evaluated and changes made.

Derman (1974) examined five theoretical problems which he felt were of equal concern in designing children's play environments. For the purposes of this study, only one of them is of major concern and that is the attitudes of adults to play. Very often they hinder children's play by designing playgrounds with an adult bias. He cited Pyatok et al.'s 1973 study which surveyed day care centres in Pennsylvania. They found that without professional help, day care staff made successful playspace decisions. This they credited to the staff's use of observation and evaluation which enabled them to make successful play design adjustments.

Johnson and Bearman (1979) studied the differences between what five to fourteen year olds thought they would do on the playground and what they actually did do there. Their results showed a large discrepancy between perceived and actual playground usage by the children. They attributed this finding to the fact that children had "been socialized to accept the characteristics of the traditional playground but in reality they used other facilities to a greater extent." Hayward et al. (1974) observed six- to thirteen-year-old children playing on the three types of playgrounds. Their results showed that although each playground had its own predominant activities and use, crucial to school-aged children's play was choice of play equipment, materials, and companions rather than physical activity.

Polly Hill (1978) best sums up the key to a good playground, by stating that it is "the provision of as many choices as possible for the age group using it."

## Rating Scales

One type of observational data collection method that can be used to screen for the current functioning of preschoolers is rating scales. They can easily be designed for use as short-form screening devices. A discussion of the types of rating scales, their advantages and disadvantages follows.

### Definition.

Gronlund (1971) defines a rating scale as "a device for systematically recording observers' judgments concerning the degree to which a quality or trait is present" (p.20). Thus, for Gronlund, a rating scale, firstly, provides an indication of how much or how little the characteristic being rated is evident and, secondly, by structuring the responses, judgments from different individuals can be obtained on the same aspect of behaviour, thus increasing the likelihood that the judgments reflect typical behaviour.

Irwin and Bushnell (1980) define rating scales as "a quantitative judgment about the degree to which a behaviour is present or how it is exhibited" (p.206). They state that rating scales can, firstly, be used to record a behaviour on the spot or afterwards and, secondly, be based on single observations or over many longer periods of time. Irwin and Bushnell also pointed out that rating scales support "assessment of behaviour to a greater extent than (they) do description of behaviour" (p.207).

Brandt (1972) reinforces the above definitions and drew particular attention to the use of rating scales in naturalistic research. He believes they are the most prevalent method for collecting observational data. He stresses that while narrative and observation data collections involve minimal evaluation by the observer, this is not so for rating scales. Information recorded by them represents the observer's judgment of what the particular behaviour under study signifies.

## Types

Guilford (1954) catalogues five types of rating scales as numerical, graphic, standard, cumulated points, and forced-choice. While other researchers (Brandt, 1972; Gronlund, 1971; Irwin & Bushnell, 1980) list the majority of these, Guilford's list is the most extensive. A brief description of each type follows.

Numerical. A numerical rating scale has a sequence of defined numbers assigned to the descriptive categories which the rater either checks or circles to represent the degree to which a characteristic is present. This type is one of the simplest and most widely used as it is amongst the easiest to construct. It also is relatively easy to use and the results can be processed easily (Brandt, 1972; Gronlund, 1971; Guilford, 1954). Numerical rating scales are useful, firstly, when the characteristic under study can be readily classified into only a few categories, and, secondly, when there is general agreement concerning these categories (Gronlund, 1971). Guilford (1954) points out that the

other types of rating scales were developed because numerical ones were believed to be more vulnerable to biases and errors. He emphasizes that with the same care, numerical rating scales can be found to be as useful and satisfactory as the other types.

Graphic. The distinguishing feature of this type of rating scale is its use of a straight line, either horizontal or vertical, with cues along these lines to help the raters determine where to record their judgments (Brandt, 1972; Gronlund, 1971; Irwin & Bushnell, 1980). Graphic rating scales are the most popular of the five types as they have advantages for both the rater and the researcher (Guilford, 1954; Irwin & Bushnell, 1980). For the rater, this type is simple and easy to use, requires little time to fill out, and there are no numbers to deal with. For the researcher, graphic rating scales require very little work to motivate raters to complete them, and allow a wide range of choice as to, firstly, the complexity of scoring and, secondly, the fineness of category discriminations (Guilford, 1954).

Gronlund (1971) creates a subform called Descriptive Graphic. Instead of single words to identify points on the scale, specific descriptive behaviour phrases are used. These thumb-nail sketches contribute to greater accuracy and objectivity during the rating process as the rater has a clearer idea as to what each point on the scale represents.

Standard. This type of rating scale presents the rater with a set of standards against which to judge the behaviour under study. The development of a scale of standards is an arduous task for the creation

of pre-established standards is difficult (Irwin & Bushnell, 1980). However, once a good set of objective standards has been established, the use of this type of rating scale offers considerable measurement merit (Guilford, 1954).

Cumulated Points. The unique feature of this type of rating scale is its method of scoring. Points are cumulated from summing individual items or averaging groups of items on the scale into a total score. Cumulated points rating scales are simple to administer and the scoring is very easy. Checklist methods fall into this type. However, some researchers (Brandt, 1972; Gronlund, 1971) when discussing observational data collection methods, do not include checklists with rating scales but create a new category for them as they have some unique features in relation to most other rating scales.

Forced-choice. With this type of rating scale the rater is given a set of descriptive phrases and forced to choose which one is most like the person being rated. The phrases are similar in their "attractiveness" to the rater but different in how well they predict the overall quality being rated (Brandt, 1972). Forced-choice rating scales were developed primarily to rate personnel. They can be designed to force the rater to select from phrases that are all favourable, all unfavourable, or a combination. This structure forces raters to indicate their true feelings, thus increasing the validity of the ratings (Irwin & Bushnell, 1980). Guilford (1954) notes the irony of forced-choice rating scales by pointing out that these scales rate

within individual traits to produce a between individual rating. For this reason, Zavala (1965) advises that this type of rating scale not be used for everyday measurement problems.

Advantages of Rating Scales

The main advantage of all rating scales is their ease in construction and also utilization. It takes very little time to fill out a rating scale in comparison to other observational recording methods. Irwin and Bushnell (1980) comment that rating scales "are often more interesting for the observer to use, perhaps because they do require the observer's judgment rather than straight forward objective recording of data" (p.213).

A second advantage of rating scales is that they can be used first in exploratory studies as raters can record their judgments about traits or behaviours that are often very difficult to measure.

A third advantage is, that in comparison to other observational recording of data, little, if any, training of raters is needed to use them as the scoring is usually easy and straight forward. This allows rating scales to be used with "psychologically naive raters" (Guilford, 1954). Consequently, it is not difficult to motivate raters to complete the scale.

Disadvantages of Rating Scales

The main disadvantages of rating scales cluster around the subjectiveness of the raters' assessments. Rating scales require raters to give their judgments on a certain behaviour which can result in many

biases and errors occurring during the rating process. The most common errors are ones due to personal bias or leniency such as generosity, severity, contrast, and central tendency errors, halo effect, error of logic and proximity error (Gronlund, 1971; Guilford, 1954; Irwin & Bushnell, 1980; Thorndike & Hagen, 1977). A brief explanation of these types of errors follows.

Leniency errors occur when raters allow personal biases to dominate their judgments while rating. This results in a general tendency to rate all individuals at the same position on the scale. Thus the following errors can be defined by their position on the scale; results in ratings that are clustered around the positive end of the scale are called generosity; those ratings that group around the negative end are labelled severity; ratings that cluster near the middle are named central tendency error. Another error, contrast, occurs when raters rate individuals the same or opposite to themselves.

Halo effect occurs when raters rate an individual similarly on all ratings, therefore obscuring the strengths and weaknesses of that individual on the different characteristics.

Logical errors result when raters perceive two characteristics that are to be rated, as more similar than they actually are. An example is associating intelligence with high achievement.

Proximity errors occur as a result of the format of the rating scale itself. Items that are placed next to each other or very close together in time and space have been shown to be rated more similarly than items farther apart.

There are many methods to effectively overcome the above weaknesses of rating scales. Both Thorndike and Hagen (1977) and Guilford (1954) present a thorough discussion of them. The ones which are relevant to this study are presented and discussed in Chapter III under "Development of the Research Instruments."

As indicated in the initial section of this chapter, the purpose of this study is to design, implement and evaluate a preschool screening device to be used by day care professionals in playground situations. The above selective review of the literature has identified a number of major factors that were considered in the design of this study. First, the difficulties associated with screening preschoolers and the value of using naturalistic observation of their behaviour was discussed. Secondly, the advantages of using day care professionals as administrators of screening devices were considered. Thirdly, the availability of day care centres and their value as an observational setting were discussed. The familiarity of the staff with the children in day care is an extremely beneficial factor in the use of observational screening devices. Fourthly, a discussion was made of the different types of playgrounds and the equipment found on them. Finally, a presentation on the types of rating scales completed this chapter. For this study, it was decided to use a descriptive graphic rating scale as it would facilitate the observation and evaluation of preschool gross motor behavior by relatively untrained day care professionals. The specific methods and procedures used in this study are described in the next chapter.

# CHAPTER III

# METHODS AND PROCEDURES

## Introduction

As mentioned in the previous chapter, there are unique problems in the screening of preschoolers. This chapter describes the methods used in this study to deal with them. In addition, details of the development of the Preschool Playground Motor Skills Rating Scale and the Individual Playground Profile are given as well as the procedures that were employed in their implementation.

## The Sample

Selection of the Subjects. The sample for this study was drawn from all three- and four-year-old preschoolers attending municipally-approved City of Edmonton day care centres that utilized their neighbourhood City playground during the spring and summer months of 1984. Only those children who were born between March 1, 1979 and February 28, 1981 were included in the initial subject pool. The sample was randomly selected from six of these day cares. Further selection occurred by setting a maximum number of nine children per homeroom that could be rated by the raters.

The number of subjects from each day care by age and sex that were identified by the above selection process is shown in Table 2.

Table 2

Age and Sex of Selected Preschoolers by Day Care

| | Male | | Female | | |
|---|---|---|---|---|---|
| Day Care | 3 yrs. | 4 yrs. | 3 yrs. | 4 yrs. | Total |
| 1 | 6 | 12 | 3 | 9 | 30 |
| 2 | 4 | 3 | 4 | 5 | 16 |
| 3 | 6 | 4 | 3 | 3 | 16 |
| 4 | 5 | 2 | 4 | 4 | 15 |
| 5 | 9 | 7 | 3 | 7 | 26 |
| 6 | 6 | 0 | 4 | 3 | 13 |
| Total | 36 | 28 | 21 | 31 | 116 |

Two of these children, both four years old, (one male, one female) were known as "special needs preschoolers" due to mild cerebral palsy and visual impairment. They were retained in the sample as markers to provide some indication as to how well the rating scale and raters identified children with poor gross motor performance.

Selection of the Raters. From the six sampled day care centres only the staff who worked regularly in the homerooms of the children selected were used as raters. As a result, the number of raters on the staff in each day care ranged from four to eight. The number of raters that rated each child ranged from two to four. Although the raters were

not selected on the basis of their professional training and experience, this information was collected and can be found in the Rating Scale Evaluation Questionnaire section of Chapter IV.

Screening Method

Observation of the subjects during freeplay in a naturalistic setting was the method selected. Observation and rating of the children was done by adults whom the subjects knew well, their regular homeroom care givers. Local City of Edmonton playgrounds that each day care regularly attended during the spring and summer were used. The children were familiar with this setting since they played on these playgrounds at least three times a week. Wade (1976) recommended that to effectively study freeplay behaviours children must be unaware that they are being observed; thus, the observational method used to record their behaviours should be as unobtrusive as possible. As a result, the rating procedures required that the raters rated their subjects after the actual freeplay session (see Observational Guidelines in Appendix C for further details).

## Development of the Research Instruments

As indicated in the last chapter, no screening devices were available to identify preschool children who might be physically awkward. Thus, a new screening device had to be developed. This section describes the process and the major factors that were considered in the design and development of the Preschool Playground Motor Skills

Rating Scale and concludes with a description of the construction of a supplementary screening device, the Individual Playground Profile.

## Preschool Playground Motor Skills Rating Scale

The major research instrument was the Preschool Playground Motor Skills Rating Scale. It was designed to measure the frequency of the children's use of playground equipment as well as the confidence with which the children used this equipment.

### Frequency and Confidence Scales

According to Griffin and Keogh (1982) "the confidence or assurance with which an individual approaches a movement situation should be an important determinant of what an individual will choose to do and how adequate the movement performance will be" (p.213). They view movement confidence as a result of a two-factor self-assessment caused by the demands of any given movement situation. These factors, movement competence ("personal skill in relation to task demands") and movement sense ("personal expectations of sensory experiences related to moving") interact to produce movement confidence.

What is of importance for this study is how movement confidence affects three aspects of participation. They are choice: whether the individual chooses to perform the movement; performance: how the individual will perform the chosen movement; and persistence: whether the individual decides to participate again. As persistence is essentially the same as choice except choosing to repeat the movement, frequency of movement performance would indicate both. Consequently, a

scale was designed to measure the frequency with which preschoolers used various pieces of playground equipment during this study.

The third aspect of movement participation, performance, formed the basis for the inclusion of a confidence scale in the descriptive graphic rating scale. Keogh, Griffin, and Spector (1981) found that both children and adults could effectively rate movement confidence on certain motor skills even "when using a global definition and making a simple rating" (Griffin & Keogh, 1982, p.229). This finding coupled with Griffin and Keogh's recommendations that movement confidence be included as an important aspect of early motor development resulted in the development and use of a four-point confidence scale within the Preschool Playground Motor Skills Rating Scale.

Scale Design

In the design, construction, and rating procedures of the Preschool Playground Motor Skills Rating Scale, the principles of rating scale construction suggested by Guilford (1954) and Thorndike and Hagen (1977) were closely followed. The type of scale chosen for the Preschool Playground Motor Skills Rating Scale was descriptive graphic. The descriptive phrases used by this type of scale improve the effectiveness of ratings as a reference standard is available for all raters at each point on the scale (Thorndike & Hagen, 1977).

In designing the descriptive graphic rating scale for this study the following design principles discussed by Guilford (1954) were utilized. First, to emphasize the continuity of the frequency and

confidence variables and to encourage raters to spread their ratings out along the scale, a continuous horizontal line of approximately 12 cms. was used. Second, as inexperienced raters (day care professionals) were being utilized and to minimize clerical errors, the "good" end of the scale was placed first on all the scales. Third, after consulting several authors on the optimal number of rating positions (Gronlund, 1971; Guilford, 1954; Thorndike & Hagen, 1977) and considering the objectives of this study, a five-point frequency scale and a four-point confidence scale were designed. An additional rating position, No opportunity to observe was included in both scales to provide serious raters with "some relief from the compulsion to guess when (they did) not want to do so" (Guilford, 1954, p.294). However Guilford (1954) cautioned that "disinterested" raters could overuse this rating. Consequently, in the Instructions for the Use of the Rating Scale, the circumstances when this rating position could be used, were stipulated (see Appendix B).

Selection of the Cues and Descriptive Phrases

In the formation of the descriptive phrases and cue words the six criteria listed by Champrey (cited in Guilford, 1954) were closely followed. They were clarity (the use of short, simple statements), relevance (choosing cues and phrases consistent with the behaviour), precision (applying the cues to only a short range on the scale's continuum), variety (varying the phrases used at the different positions on the scale), objectivity (using phrases that do not imply social,

moral or ethical evaluations) and uniqueness (selecting cues that are unique to each behaviour).

The results of research done by both Simpson (1963) and Stone and Johnson (1959) aided in the selection of the cue words used in the frequency scale. Both studies investigated the meanings of words most often used in rating scales and checklists. Stone and Johnson (1959) researched the continuum of meaning of frequency words while Simpson (1963) examined the stability of meaning of frequency words over a twenty-year period. They both provided a scaling of these frequency words and their suggestions were used in this study.

Other guidelines mentioned by Guilford (1954) for developing cues and descriptive phrases were also implemented. They were that cues and descriptive phrases should, firstly, be placed at the specified points on the scale, secondly, not be so extreme in their meaning as to discourage raters from using them and, thirdly, not necessarily be equally placed along the scale.

Selection of the Playground Equipment

Information from three sources was collected in order to select the playground equipment listed in Heading 1 - Equipment Availability. First, a policy statement by the City of Edmonton's Parks and Recreation Department in their Master Plan, 1979 - 1983, to gradually shift from traditional to creative and combination playgrounds helped to predict what playground apparatus would be most common. Second, a survey of the types of playground equipment found on the City's playground was taken by consulting with City of Edmonton park designers and by visiting 12

City of Edmonton playgrounds. Third, 77 three- and four-year-old preschoolers were observed on the three types of playgrounds during May and June, 1983 and the frequency of equipment usage was recorded. As a result of this process, playground equipment that was most frequently used by preschoolers and most commonly found at the playgrounds was selected for inclusion in this study.

Rating Procedures

Both a training session and an observation period were scheduled into the pre-rating process. Guilford (1954) suggested careful training of raters in order to minimize halo, central tendency, and leniency/severity errors while Thorndike and Hagen (1977) stated that not only was guidance and training necessary for raters but also an observational time afterwards. This, they felt, allowed raters to see the many variations in the ratee's performance and thus, enabled them to make more meaningful ratings. For Thorndike and Hagen (1977) the ideal rater is someone who, firstly, has the opportunity to observe the ratee a great deal and, secondly, has the best chance to see the relevant behaviour in its natural setting.

To encourage effective ratings, Gronlund (1971), Guilford (1954), and Thorndike and Hagen (1977) all recommended that the behaviour being rated be overt, that is, directly observable. This would result in more accurate ratings especially when observation took place in the setting where the behaviour naturally occurred. Consequently the frequency of equipment use and gross motor confidence of three- and four-year-old

children on the playground met these criteria. They all cautioned, however, that rating scales only be employed when there was no other effective means to examine the behaviour under study.

Further refinements, as suggested by Gronlund (1971), Guilford (1954), and Thorndike and Hagen (1977) to improve the effectiveness of the descriptive graphic rating scale included rotating the rank order of the children's names for each rater on each page, rating every child on one trait at a time, and pooling the ratings of a number of raters. These suggestions were followed.

## Pilot Study

The main purpose of the pilot study was to collect information and receive feedback about the Preschool Playground Motor Skills Rating Scale from practising day care professionals in the areas of ease of utilization, clarification of the instructions and the cues used, and the amount of time required to complete the scale.

The Preschool Playground Motor Skills Rating Scale (Appendix A), its Instructions for Use (Appendix B), and the Rating Scale Evaluation Questionnaire (Appendix F) were given to five child care staff working in one municipally-approved City of Edmonton day care centre. These staff members regularly worked with three and four year olds, frequently taking them to their local City of Edmonton playground. The rating scale with the names of the same six 3 year olds and five 4 year olds, the instructions, and a follow-up evaluative device, the Rating Scale Evaluation Questionnaire, were given to each of the day care professionals several days in advance of meeting with the researcher.

This provided them with the opportunity to look over the material beforehand and to think about the children they had been asked to rate. The session to complete the above process took place one afternoon with the researcher present to answer any questions that might arise. All verbal information gathered during this meeting was collected on a tape recorder.

Results showed that the day care professionals, firstly, had no difficulty in understanding the cues used in Headings 3 and 4, secondly, rated the instructions on how to use the rating scale as easy, thirdly, the amount of time spent per page to be five minutes and the total time filling out the rating scale to be about right, and, fourthly, that more clarification was needed in Heading 2. It was noted that when the playground equipment was not used extensively by the children, the raters had more difficulty consistently rating the frequency and confidence of their gross motor playground performances. Also noted were the additional comments made by the day care staff. The main one was the fact that they had not given much consideration to the children's gross motor performances on the playground for they had viewed their trips there as solely recreational. As a consequence of having used the Preschool Playground Motor Skills Rating Scale, these day care professionals had increased their awareness considerably.

In addition to the Preschool Playground Motor Skills Rating Scale, an Individual Playground Profile was designed for use in this study. A discussion of its design and construction follows.

## Individual Playground Profile

Based on the recommendation of Keogh, Sudgen, and Calkins (1979) that a multiple measurement process was needed for the identification of movement problems, a second screening device, the Individual Playground Profile, was constructed (Appendix E). Its purpose was to gather more general information about the subjects' gross motor playground behaviours and was designed so that raters could fill it out quickly and easily. As a result, the Individual Playground Profile was short, consisting of a single page per child. It contained four questions, three of them in graphic rating scale design and the fourth, multiple response. These questions sought information about how much fun the child had on the playground, the child's overall gross motor confidence on the playground, a comparison of the child's overall gross motor performance to his/her peer group, and a list of descriptors used to describe the child's gross motor performances. It was included in the packet given to the raters after the observational period was finished. However, the raters had no prior knowledge about it.

## Collection of the Data

In order to initiate the collection of the data, a training session was given at each day care centre for its raters prior to the observational period. Post-observational Interviews were also organized to obtain more information about the subjects who appeared to be near the bottom ends of the scales. This section will present the purpose and organizational procedures used for the training session and the

guidelines and procedures for the observational period and the post-observational interviews.

## Training Session

### Purpose

The purpose of the training session was to, firstly, clarify all the terms and descriptive phrases used in the Preschool Playground Motor Skills Rating Scale, secondly, to make sure that the instructions for the use of the rating scale and the observational guidelines were understood, and, thirdly, for the researcher to be available to answer any questions the staff might have pertaining to the rating scale and to the study. Thorndike and Hagen (1977) recommended that in order to obtain sound ratings, raters must be willing to rate. Consequently, they must be "sold" on the importance of the ratings. In this study to fulfill this requirement, a training session was held.

### Organization

A week before the training session a packet containing a copy of the Observational Guidelines, the Preschool Playground Motor Skills Rating Scale and the Instructions for its use was delivered to each day care centre so that staff members had the opportunity to read through the material. A training session of approximately one and one half hours' duration was given to each of the six day cares prior to the three-week observational period. These training sessions took place

from the end of April to the middle of May, 1984. The format of each of the sessions was as follows:

Location. The training sessions were held at each of the day cares at a convenient time for all staff members involved in the study. For five day cares this process was completed during the children's nap time and for one, it was during an evening staff meeting.

Materials. Each staff member received a copy of the Observational Guidelines, the Preschool Playground Motor Skills Rating Scale, and its Instructions which they kept and could use for reference during the observational period.

Presentation. Each session opened with a discussion of the Observational Guidelines in order to clarify them. Using the Preschool Playground Motor Skills Rating Scale's headings as a guide, each presentation started with Heading 1 and preceded on to number 4.

A slide presentation of all the playground equipment listed under Heading 1, Equipment Availability, was shown. This enabled all raters to learn the names of the different pieces of playground equipment. It also provided an opportunity to discuss the equipment variations that were unique to each of the day care centres City of Edmonton playground and how they fitted into this heading.

For Heading 3, Does the Child Choose to, there were two stages in the presentation. Firstly, a slide presentation of the Frequency and Equipment Availability Training Quiz was shown and discussed (Appendix D). A copy of it was distributed to everyone beforehand so that they

could readily follow the presentation and jot down notes if necessary. Secondly, everyone answered the Frequency and Equipment Availability Quiz (Appendix D) on their own referring to the materials if they felt it necessary. (Results of these quizzes averaged 12.7 out of 15 or 85% for the six day cares with the range being 11.3 to 14.5). After completion of the quiz answers were orally given and problems discussed.

A twenty minute videotape made by the researcher, of three- and four-year-old day care children playing on a City of Edmonton playground was also shown. It was designed to illustrate the cues used in Heading 4, Is the Child's Performance on the. Discussion throughout the film helped to further clarify them.

After the researcher was satisfied that all questions pertaining to the Preschool Playground Motor Skills Rating Scale's use had been answered, each of the staff members was given a list with the names of the children that he and she was to observe during the observational period.

It should be noted that at no time were the day care staff aware that the information obtained from the Preschool Playground Motor Skills Rating Scale might be used in the screening of physical awkwardness in three- and four-year-old preschoolers. This was to minimize observer expectancies (Kazdin, 1977).

## Observational Period

Following each day care's training session a three-week observational period took place. This was based on Thorndike and Hagen's (1977) recommendation for improving the rating process. It was

to provide raters with a reasonable opportunity to observe the ratees after the training session. It was also beneficial to the rating process as the children had not played extensively on the playground since the previous fall. Thus, the three-week observational period allowed the preschoolers to practise their playground gross motor skills and to also learn new ones before they were rated. Staff were to follow the Observational Guidelines (see Appendix C), observing for the first twenty minutes "their" children playing at their City of Edmonton playground. When the observational period was finished, the raters were given a packet containing the Preschool Playground Motor Skills Rating Scale with all their children's names listed on each page (the rank order changed on each page), the Instructions for the Use of the Rating Scale, Individual Playground Profile Sheets with each child's name on them (rank order changed for each rater rating the same children), and a Rating Scale Evaluation Questionnaires. Day care staff were requested to fill out all the forms by themselves and to promptly return them in the envelope provided to their day care Director.

## Post-observation Interviews

Prior to statistical analysis, anecdotal data were collected by tape recorder during open-ended group interviews with the day care professionals who had indicated that some of their children might have gross motor difficulties by rating them as Hesitant or Fearful, and Below Average or Well Below Average on the Individual Playground Profile. The main purpose was to gather more information about these

specific children as quickly as possible after the observational period for the summer holidays were fast approaching, a time when the attendance of both children and staff fluctuates. A secondary purpose was to obtain an understanding of how the raters had rated. Interviews took place at each day care approximately one week after all the data had been collected. Only the day care professionals who had rated these children were interviewed. A general outline listing questions about the child's body size, gross motor, fine motor, social and verbal skills, and home environment was used to guide in the collection of the data. A total of 21 children were discussed by a total of 32 staff members. The age and sex of the subjects about whom post-observational data were collected are shown in Table 3.

Table 3

Age and Sex of "Interview" Subjects

| | Male | Female | Total |
|---|---|---|---|
| 3 years | 8 | 4 | 12 |
| 4 years | 3 | 6 | 9 |
| Total | 11 | 10 | 21 |

When the data from the Preschool Playground Motor Skills Rating Scale and the Individual Playground Profile were analyzed, the two marker preschoolers were included in the sample, increasing the number to 23.

# CHAPTER IV

## RESULTS AND DISCUSSION

The following four instruments were used to collect information on the gross motor development of preschool children in playground settings: Preschool Playground Motor Skills Rating Scale, Rating Scale Evaluation Questionnaire, Individual Playground Profile and Post-observational Interviews. In this chapter, the data collected by each of these instruments are presented and discussed in response to the specific sub-problem questions posed in Chapter I. Also, the concluding section, Preschoolers Requiring Further Assessment, presents information on preschoolers who seem to be "at risk" within the gross motor domain.

### Preschool Playground Motor Skills Rating Scale

What playground equipment is most available and most used by preschoolers?

Table 4 shows the general availability of the 14 pieces of playground equipment upon which the day care professionals rated the gross motor performances of the children. The equipment is rank ordered according to those which were most available to all the day cares. The equipment that was available to most preschoolers in this study was the wooden climber, high slide and low slide while the tube slide, tube climber and horizontal tire swings were the least available.

Table 4

Use of "Equipment Not Available" Rating

| Equipment | % |
|---|---|
| Wooden Climber | 11 |
| High Slide | 14 |
| Low Slide | 21 |
| Tires | 33 |
| Standard Swings | 34 |
| Wooden Planks | 35 |
| Baby Swings | 35 |
| Metal Frame | 36 |
| Swinging Bridge | 49 |
| Vertical Tire Swings | 56 |
| Spiral Slide | 60 |
| Tube Slide | 78 |
| Tube Climber | 80 |
| Horizontal Tire Swings | 92 |

Note. % based on the total number of ratings by raters.

Complete information on the results of the ratings made on the frequency and confidence scale sections of the Preschool Playground Motor Skills Rating Scale are presented in Appendix H.

To obtain a more representative measure of the use of the children made of the equipment when it was available to them, the total number of ratings for the cues Almost Always and Frequently were summed and the percentage of use calculated for each piece of equipment. This information on the most selected and used playground equipment is reported in Table 5. The children played most often on the wooden climber, spiral slide, swinging bridge and standard swings. Upon closer inspection, it is noted that these pieces of playground equipment seem

to facilitate exploration, testing of oneself and creative play: the three main facets of playground play (Sutton-Smith, 1970). Their appeal seems to lie in the fact that the children can perform a wide variety of play activities on these pieces of equipment.

Table 5

Equipment Most Selected by the Preschoolers

| Equipment | % |
|---|---|
| Wooden Climber | 53 |
| Spiral Slide | 46 |
| Swinging Bridge | 44 |
| Standard Swings | 41 |
| Metal Frame | 31 |
| Low Slide | 30 |
| Tube Climber | 29 |
| Horizontal Tire Swings | 28 |
| Tube Slide | 27 |
| High Slide | 25 |
| Baby Swings | 24 |
| Vertical Tire Swings | 20 |
| Tires | 20 |
| Wooden Planks | 13 |

In summary, it is concluded from the above information on the availability and frequency of playground equipment use that the preschoolers in this study used a wide range of equipment. This equipment, also, required them to use a number of different gross motor skills. As a result, when their gross motor behaviour was rated on these items, it was assumed that a fairly broad picture of their gross motor proficiency was being obtained.

Are there differences in the accuracy of the ratings on the different pieces of playground equipment? Can day care professionals accurately rate the gross motor performances of preschoolers?

As reported in Chapter III, 116 preschool children were rated by 36 different day care professionals. A report on their educational qualifications and professional experience is included in the next section. In some cases, the preschoolers were rated by more than two raters; in fact, 39 children were rated by three raters and seven by four raters. However, only the data from the first two randomly assigned raters for each child were included in the following analysis.

The extent to which pairs of raters agreed on their observations was determined by completing a Pearson Product-moment Correlation on the results obtained from the Preschool Playground Motor Skills Rating Scale.

As noted in Tables 4 and 5, the children used a wide variety of playground equipment during this study. As expected, the availability and frequency of use of the equipment by the children seemed to influence the day care professionals' rating agreements.

As Table 6 shows, the interrater agreement coefficients were generally higher for the children's performances on those pieces of equipment which they most often used. Only in one case, the high slide, was this trend not followed. Perhaps the most striking feature of Table 6 is the clear difference between pieces of equipment which encouraged raters to agree on their ratings of the preschoolers' gross motor skills

Table 6

Comparison of the Pearson Correlation Coefficients for Raters 1 and 2 on the Frequency and Confidence Scales and the Equipment Most Selected by Preschoolers

| Item | % | Frequency | Confidence |
|---|---|---|---|
| Wooden Climber * | 53 | .79 | .84 |
| Spiral Slide * | 46 | .83 | .88 |
| Swinging Bridge * | 44 | .73 | .83 |
| Standard Swings * | 41 | .71 | .70 |
| Metal Frame * | 31 | .77 | .75 |
| Low Slide | 30 | .24 | .21 |
| Tube Climber | 29 | .21 | .27 |
| Horizontal Tire Swings | 28 | -.07 | -.05 |
| Tube Slide | 27 | .46 | .68 |
| High Slide * | 25 | .72 | .69 |
| Baby Swings | 24 | .47 | .36 |
| Vertical Tire Swings | 20 | .27 | .37 |
| Tires | 20 | .34 | .57 |
| Wooden Planks | 13 | .26 | .36 |

Note. * = Best Items

and those which did not. Also, the pieces of equipment upon which the raters had the highest agreements on the children's performances, did so on both the Frequency and Confidence Scales. It should be noted that the interrater agreement coefficients for both the Frequency and Confidence Scales were almost always the same. The children's performances on the following pieces of playground equipment received the highest interrater agreements: the high slide, spiral slide, wooden climber, metal frame climber, standard swings and swinging bridge. These pieces of playground equipment were categorized as "Best Items."

It is noted that three of the six Best Items were pieces of equipment that are typically included on traditional playgrounds while the remaining three are usually found on creative playgrounds.

Upon further examination of the Best Items, the following details are noted. Firstly, in this study, the wooden climber was the most frequently available playground equipment and the most used by the preschoolers. The children's performances on it also received the second highest interrater agreement for both the Frequency and Confidence Scales. Secondly, the spiral slide was available to less than half the preschoolers in this study. However, when it was present, not only did the children choose to play on it but interrater agreement coefficients were high. This suggests that the spiral slide provides raters with extra opportunities to observe the preschoolers and therefore, increases the agreement of their ratings. Thirdly, the high slide was available to most of the preschoolers and the children's performances on it obtained a relatively high interrater agreement. Nevertheless, many of the preschoolers did not choose to use it.

There are a number of factors which appear to contribute to the high agreement ratings obtained when the children used the Best Items. To some extent, these factors all involve the ease with which a relatively novice rater can observe the subtleties of gross motor skills. Consideration of these factors may assist in modifying the Preschool Playground Motor Skills Rating Scale.

Thorndike and Hagen (1977), as reported in Chapter III, recommend that raters have an opportunity to observe before rating. The three-

week observational period met this criterion. However, upon closer scrutiny of the data and as mentioned above, it is on the equipment that the preschoolers most frequently used that the higher interrater agreements were obtained (Table 6). In fact, when the equipment was available, five of the six Best Items were also the most popular with the preschoolers of this study. As a result, more opportunity to observe the preschoolers was afforded the raters by these particular pieces of playground equipment and the raters were able to observe more than "initial performance," a previously mentioned screening concern of Lewko's (1977).

Another important factor is that some playground gross motor skills have more obvious observable features than others and thus, are easier to rate. As previously mentioned in Chapter III, Guilford (1954) recommends that only overt traits should be rated in order to encourage effective ratings. The Best Items required the preschoolers to use four basic playground gross motor skills: swinging, climbing, sliding and balancing. Each of these skills has relatively clear, observable features that the day care professionals were able to identify; thus, they could rate the children's performances more easily on these skills. For example, it was easier for the raters to observe and rate the performances of the preschoolers on the standard swings than the vertical tire swings as they knew what to expect and look for when the children were swinging.

Another key factor underlying these Best Items is the fact that the children required a fairly high degree of skill to use these pieces of equipment. As a result, the day care professionals were able to

identify the preschoolers who were better performers by noting who used these items and by judging whether their performances were skilled or not.

The relative standardization of the equipment for the Best Items was also a possible reason for the higher interrater agreements on the preschoolers' performances. The day care professionals did not have to make adjustments for the variability in the playground equipment. In City of Edmonton playgrounds, there is only one type of spiral slide, swinging bridge and metal frame climber; the high slide and the standard swings have two types. The wooden climber was the only playground equipment to have several types. This degree of uniformity may have made it easier for the raters to be more objective in their ratings.

In considering the differences between those items that encouraged high interrater agreements on the preschoolers' performances and those that did not, there are three plausible reasons: the differences between the children, the raters and the equipment. Firstly, as expected, the most noticeable factor is the variability in behaviour amongst the preschoolers. For example, they can vary in their proficiency of gross motor skills, their enjoyment of playground play, their readiness to learn new gross motor playground skills and their social skills. Secondly, the differences in the observational skills and training of the day care professionals as well as their individual rating tendencies can explain some of the variability among the raters. Thirdly, equipment variability between the playgrounds as a factor in low rater agreement is exemplified by the wooden planks and low slide.

Wooden planks can all be the same height or at varying ones; most wooden planks are placed at the periphery of the playground; some are not. Some low slides are very wide while others are narrow; some have steps to climb up while others have wooden posts or planks. Although Herkowitz (1978), Hill (1978), Sisk (1979) and Wuellner (1979) all recommend variety and choices in playground equipment, it was the variability of this equipment among the playgrounds that makes it difficult to obtain high interrater agreement for the children's performances on these items.

As reported in Table 7, the interrater agreements for the overall assessment ratings were generally very low. For these ratings, the playground equipment was grouped according to the primary gross motor skill needed to use it and summary ratings on the specific gross motor skills of preschoolers were made by the day care professionals. The purpose of these ratings was to acquire an overview of the children's playground gross motor skills. However, as the results indicate, this was difficult to obtain.

It should be noted that balancing, with only two items in its group, and running, a single item, required less observational information to be generalized. This made it much easier for the raters to reduce their observations into one overall assessment rating. As a result, the interrater agreement for these two overall assessment ratings was higher than the others. As Guilford (1954) and Thorndike and Hagen (1977) recommend rating only overt traits, it was contrary to their recommendation to incorporate this type of rating into the

Table 7

Pearson Correlation Coefficients for Raters 1 and 2 on Overall Ratings

| Items | Frequency | Confidence |
|---|---|---|
| Running | .60 | .50 |
| Balancing | .56 | .56 |
| Swinging | .28 | .19 |
| Sliding | .23 | .08 |
| Climbing | .17 | .27 |

Preschool Playground Motor Skills Rating Scale. The results from these questions are evidence that their advice should be followed.

A correlation coefficient of above .80 is recommended by Frankenburg (1975) as acceptable reliability for a screening test. If the reliability is lower, he suggests modifying the screening test to achieve higher reliability. Therefore, the Preschool Playground Motor Skills Rating Scale needs improvement to meet this criterion.

In summary, the playground equipment most available to the preschoolers in this study was the wooden climber, high slide and low slide. The pieces of equipment that they most frequently played on were the wooden climber, spiral slide, swinging bridge and standard swings. Day care professionals, as novice observers of gross motor skills, were able to rate the performances of three and four year olds. However, there were differences in the rating agreements of the preschoolers' performances on the different pieces of playground equipment. The

children's performances on the high slide, spiral slide, wooden climber, metal frame climber, standard swings and swinging bridge had the higher interrater agreement results.

## Rating Scale Evaluation Questionnaire

How do the day care professionals assess the use of the Preschool Playground Motor Skills Rating Scale?

Thirty-three day care professionals, from a total of 36, completed the Rating Scale Evaluation Questionnaire; one other only partially completed it. As shown in Tables 8 and 9, the majority of them had at least an Early Childhood Diploma (32 of 33) and three years or less of day care working experience (22 of 33). The educational qualifications of these day care professionals is well above Alberta's requirements (Manpower planning unit, 1982). This result suggests that they are able to provide very good child care to the preschoolers of their respective day cares (Snow, 1983). Thus, it must be recognized that the training qualifications of these day care professionals would positively influence the results of this study.

The Preschool Playground Motor Skills Rating Scale is easy to use as 31 of the 34 day care professionals rated it's use as either Easy or Very Easy (Table 10). When questioned as to the clarity of the frequency and confidence categories and the instructions for the rating scale, 28 to 30 day care professionals rated them as easily understood (Tables 11, 12 and 13). As reported in Table 14 and 15, the majority of raters (20 - 21), firstly, took five to ten minutes per page to fill out

Table 8

Staff Training

| Training | Frequency | % |
|---|---|---|
| Non-Some | 2 | 6 |
| ECD | 21 | 65 |
| Degree | 5 | 15 |
| Degree and ECD | 4 | 12 |
| ECD and other | 1 | 3 |
| Total | 33 | |

Table 9

Staff Experience

| Experience | Frequency | % |
|---|---|---|
| 1 year or less | 9 | 26 |
| 2 years | 5 | 15 |
| 3 years | 8 | 23 |
| 4 years | 3 | 9 |
| 5 years | 4 | 12 |
| Kindergarten/Nursery | 1 | 3 |
| 6-10 | 2 | 6 |
| 11-15 | 2 | 6 |
| Total | 34 | |

Table 10

How Easy was it to Use the Rating Scale?

| User Ease | Frequency | % |
|---|---|---|
| Very difficult | 0 | 0 |
| Difficult | 3 | 9 |
| Easy | 27 | 79 |
| Very easy | 4 | 12 |
| Total | 34 | |

Table 11

How Easy was it to Understand the Frequency Scale Descriptors?

| Frequency Ratings | Frequency | % |
|---|---|---|
| Very difficult | 0 | 0 |
| Difficult | 3 | 9 |
| Easy | 27 | 79 |
| Very easy | 4 | 12 |
| Total | 34 | |

Table 12

How Easy was it to Understand the Confidence Scale Descriptors?

| Confidence Ratings | Frequency | % |
|---|---|---|
| Very difficult | 0 | 0 |
| Difficult | 0 | 0 |
| Easy | 28 | 85 |
| Very easy | 5 | 15 |
| Total | 33 | |

Table 13

How Easy was it to Understand the Instructions to Use the Rating Scale?

| Instructions | Frequency | % |
|---|---|---|
| Very difficult | 0 | 0 |
| Difficult | 0 | 0 |
| Easy | 30 | 88 |
| Very easy | 4 | 12 |
| Total | 34 | |

Table 14

What was the Average Length of Time per Page You Spent Rating?

| Time Per Page | Frequency | % |
|---|---|---|
| Over 30 minutes | 2 | 6 |
| 30 | 1 | 3 |
| 25 | 3 | 9 |
| 20 | 2 | 6 |
| 15 | 4 | 12 |
| 10 | 10 | 30 |
| 5 | 11 | 33 |
| Total | 33 | |

Table 15

Did the Total Time Spent Filling Out the Rating Scale Seem . . .

| Total Time | Frequency | % |
|---|---|---|
| Too long | 1 | 3 |
| Long | 10 | 30 |
| About right | 20 | 61 |
| Short | 2 | 6 |
| Too short | 0 | 0 |
| Total | 33 | |

the rating scale and, secondly, thought that the total time spent completing the rating scale was About Right. There was a large minority (11 - 13 raters) who found the time required to complete the rating scale as Long. Twenty-nine day care professionals rated the training session as at least Beneficial; no one considered it to have been Detrimental (Table 16). As Table 17 indicates, the majority of raters (30 of 33) were confident in their own ratings of the preschoolers that they had observed.

Table 16

Was the Training Session . . .

| Training Session | Frequency | % |
|---|---|---|
| Very detrimental | 0 | 0 |
| Detrimental | 0 | 0 |
| Unnecessary | 4 | 12 |
| Beneficial | 22 | 67 |
| Very beneficial | 7 | 21 |
| Total | 33 | |

Table 17

How Confident are You that Your Ratings are Accurate?

| Confidence in Ratings | Frequency | % |
|---|---|---|
| Very unsure | 0 | 0 |
| Unsure | 3 | 9 |
| Confident | 29 | 88 |
| Very confident | 1 | 3 |
| Total | 33 | |

The Preschool Playground Motor Skills Rating Scale was rated as a screening device that is easy to use with clearly understood instructions. The raters found the training session beneficial as it provided an opportunity for them to discuss any difficulties that they had. Although the Preschool Playground Motor Skills Rating Scale was easy to use, the results indicate that it took a long time to complete. However, this did not seem to be a concern for the majority of the raters. Unlike some of the teachers who refused to participate in Gilberg et al.'s study (1982), due to the lack of time for thorough observation, the day care professionals of this study, having observed "their" preschoolers for three weeks, had considerable confidence in their ratings.

## Individual Playground Profile

Can a supplementary screening device provide additional information that is useful to the screening process?

Prior to discussing the results, it should be noted that the raters had not been given an opportunity to view the Individual Playground Profile until after the observational period was finished. Although the raters were "untrained," they had had an opportunity to observe "their" children during the observational period required by the Preschool Playground Motor Skills Rating Scale. As a result, this observational period should have made it easier for the raters to rate these preschoolers on the Individual Playground Profile.

Question Two, (On the playground, this child's gross motor performance is ?), had the highest interrater agreement coefficient at .60. This question related more specifically to the Preschool Playground Motor Skills Rating Scale than the other two, (How much fun does this child appear to have on the playground?), and (In comparison to the other children in your day care, this child's gross motor performance on the playground is . . .?) which had interrater agreements of .43 and .48 respectively. These subjective ratings certainly had much lower interrater agreements than the Best Items and the information collected by them should be used with care. Complete information on the results of the ratings for these three questions is found in Appendix I.

Question Four, [What word(s) would you use to describe the gross motor performance of this child?], is open-ended and thus, only frequency data on the descriptors chosen is reported in Table 18. Although the results obtained are a function of this study's sample, a review of some of these descriptors may be beneficial. "Co-ordinated" and "confident" were the most frequently selected descriptors used to describe the gross motor performances of the preschoolers in this study. It should be noted that the word "confident" was used elsewhere in this study. As a very general level, the high percentage of use of these words reflects a positive assessment of these children's gross motor playground skills. "Very poor" and "uncontrolled" were the least chosen descriptors. As these two words were infrequently selected, when raters chose to use them, they were indicating a real concern for a particular child's gross motor skills. The maximum number of descriptors selected by one rater to describe one child's gross motor performance was 12.

Table 18

Frequencies and Percentages of Descriptor Selections

| Descriptors | No. | % |
|---|---|---|
| Co-ordinated | 160 | 8.9 |
| Confident | 153 | 8.6 |
| Energetic | 136 | 7.6 |
| Controlled | 111 | 6.2 |
| Average | 107 | 6.0 |
| Relaxed | 100 | 5.6 |
| Acceptable | 99 | 5.5 |
| Skilled | 96 | 5.4 |
| Cautious | 87 | 4.9 |
| Inventive | 86 | 4.8 |
| Good | 81 | 4.5 |
| Flowing | 71 | 4.0 |
| Very good | 68 | 3.8 |
| Daring | 67 | 3.7 |
| Above average | 51 | 2.9 |
| Nervous | 47 | 2.6 |
| Unsteady | 38 | 2.1 |
| Tense | 36 | 2.0 |
| Passable | 34 | 1.9 |
| Awkward | 33 | 1.8 |
| Excellent | 26 | 1.5 |
| Unco-ordinated | 22 | 1.2 |
| Clumsy | 22 | 1.2 |
| Jerky | 19 | 1.1 |
| Highly skilled | 16 | 0.9 |
| Poor | 15 | 0.8 |
| Very poor | 5 | 0.3 |
| Uncontrolled | 3 | 0.2 |

Note. Frequency data based on 1789 responses.

In summary, how much fun the child appeared to have on the playground (Question One) and a comparison of the child's gross motor performance on the playground to his/her peers (Question Three) appears

to increase the subjectiveness of the ratings. As a result, they were less accurate. Consequently, these questions do not provide very meaningful information for the screening process. However, the overall rating of the child's confidence while performing on the playground (Question Two) and the choice of descriptors used by the raters to describe the child's gross motor performance on the playground (Question Four) enabled raters to indicate in a more general and accurate way how a child was performing on the playground. This additional information collected by the Individual Playground Profile would be useful to the screening process.

## Post-observational Interviews

Can the identification process be enhanced by anecdotal data collected from interviews with day care professionals?

As discussed in Chapter III, the Post-observational Interviews were conducted in order to acquire additional information on the preschoolers who obtained low ratings on the Preschool Playground Motor Skills Rating Scale. The information collected on each of these children was on their family background, birth order, body size, play skills, ethnic origins, gross motor and fine motor skills. One of the reasons for conducting these interviews was to examine more closely the decision processes used by the raters. The interviews generated a number of important observations about these children. As reported in Chapter III, 21 preschoolers were in this group and their day care professionals interviewed. Inclusion in this group did not mean that the children

were "at risk;" however, their low performance ratings suggested that further study of them was required. Due to the time constraints of this study, these interviews were held prior to statistical analysis. Therefore, it would be expected that several children who were, in fact, not "at risk" would be included in this group. Thus, these false positives would influence the findings. In this section, the results of the anecdotal data collected during the Post-observational Interviews are presented and discussed.

The overall results indicate that the 21 children selected for Post-observational Interviews were a heterogeneous group. As reported in Table 19, they varied in respect to their home backgrounds as well as to body size, health, and the specific gross motor, fine motor, and play skills that they used. The demographic results show that over 50% of the children were from immigrant families. Thus, the culturally-normative activities that these children participate in at home, might be quite different from those activities of non-immigrant children. However, during the interviews, a more extensive picture of what some of these immigrant preschoolers were doing, emerged. Often these children played by themselves, but in particular, they spent a large amount of time observing the other children in the day care. The day care professionals interviewed expressed the opinion that this observational process helped these preschoolers learn about some of the intricacies of Canadian culture; namely, new foods, new eating utensils, new language, and new activities. In conclusion, no other factor seemed to have as great an influence as the cultural background of the children. Thus,

Table 19

Interview Data

| Ethnic Background | | Family Status | | Physical Problems | | Health | |
|---|---|---|---|---|---|---|---|
| Canadian | 10 | One Parent | 7 | Yes | 3 | Healthy | 14 |
| Non-Canadian | 11 | Two Parents | 14 | No | 18 | Sickly | 7 |

| Birth Order | | Height | | Weight | | Tricycles | |
|---|---|---|---|---|---|---|---|
| Only | 10 | Over | 6 | Over | 7 | Yes | 15 |
| Youngest | 7 | Average | 11 | Average | 8 | No | 2 |
| Other | 4 | Under | 4 | Under | 6 | Not known | 5 |

| Play | | Fine Motor | | Language Delay | |
|---|---|---|---|---|---|
| Solitary | 12 | Concern | 4 | Yes | 5 |
| Group | 9 | No Concern | 17 | No | 16 |

| Jumping | | Rebounder | | Stairs | |
|---|---|---|---|---|---|
| Yes | 7 | Often | 5 | Marking time | 8 |
| Cautiously | 4 | Seldom | 7 | Alternating feet | 6 |
| No | 2 | No | 3 | Not known | 7 |
| Not known | 8 | Not known | 6 | | |

the birth order, body size, health, and gross motor, fine motor, and play skills of these preschoolers were not highly correlated with their gross motor playground skills as rated by the Individual Playground Profile.

There were other findings and observations collected during the interviews which influenced the results. The additional information collected was helpful in understanding the observational and rating processes employed by the raters in this study.

First, preschoolers in four of the six day cares had access to school gymnasiums and thus, the day care staff had had an opportunity to observe the children in another gross motor setting. This may have enabled them to give more knowledgeable answers to the broad range of the questions asked during the interviews.

Second, the interview questions pertaining to stair climbing and riding tricycles were impossible for some day care professionals to answer as the equipment was not available. However, one piece of gross motor equipment that was available to all children was the rebounder. This was due to its size, height and cost. It also had been newly acquired by all of the day cares. As a result, a question about the children's use of this piece of equipment was included in these interviews.

Third, the day care professionals in this study were willing to identify children on the Individual Playground Profile as being "awkward" and "clumsy" because they did not consider these words to be pejorative descriptors for three- and four-year-old preschoolers. (This is in contrast to the teachers of school-aged children in the studies of

Henderson & Hall, 1982; Keogh et al., 1979). Preschoolers, who were described as "awkward" or "clumsy," were perceived to simply be at an early stage of skill acquisition rather than have a true gross motor development problem. This wider bandwidth of acceptability is a sensible safeguard against prematurely labelling preschoolers as physically awkward; however, it must be considered when evaluating the opinions of day care professionals.

Fourth, it should be noted that all of the day cares had "quiet" rooms where mainly fine motor activities took place, and "noisy" rooms where gross motor activities were prevalent. Inasmuch as they were free to choose, some preschoolers never used the "noisy" gross motor room. The only opportunity for the day care professionals to observe these children was at the playground. Thus, the provision of an observational period enabled the day care professionals to rate these children more accurately.

Fifth, a beneficial side effect had occurred. The use of the Playground Preschool Motor Skills Rating Scale had increased the day care professionals sensitivity to gross motor skill development. Comments, similar to those made during the pilot study (see Chapter III), were expressed.

Although the overall results show that the "interview" children had very little in common with each other, the additional information collected was helpful in understanding the observational and rating processes used by the day care professionals in this study.

## Preschoolers Requiring Further Assessment

Can a group of preschool children be identified as requiring further gross motor assessment based on the ratings of their performances on the Individual Playground Profile and the Preschool Playground Motor Skills Rating Scale?

A final step in the development, implementation and evaluation of the Preschool Playground Motor Skills Rating Scale and Individual Playground Profile was to determine whether they could be used to identify preschoolers who were not performing adequately on the playground. The selection process was initiated by using the results obtained from Question Two on the Individual Playground Profile. This question asked: On the playground this child's gross motor performance is: confident, adequate, hesitant or fearful. As previously mentioned, the interrater agreement for this question was only .60; however, it had the highest agreement of the three questions posed in the Individual Playground Profile. Using the results of this question as an initial screening test, preschoolers who were rated as being Hesitant and/or Fearful by all their raters were categorized as a low skill group who might require further assessment. It was found that of the 116 subjects, 10 less-skilled children were identified by this procedure. For the purposes of this study, these subjects were labelled as Skill Group Two, while the remaining 106 subjects were called, Skill Group One. The age and sex distributions of the less-skilled children are shown in Table 20.

Table 20

Age and Sex of Skill Group Two

| | Male | Female |
|---|---|---|
| 3 years | 3 | 1 |
| 4 years | 3 | 3 |
| Total | 6 | 4 |

It should be noted that of the two preschoolers who were included as markers, only the female was identified by this selection process. Although the male marker was considered a "special needs" child, his disabilities did not greatly affect his gross motor performance on the playground. As a result, he was correctly not selected by this process.

Tables 21 and 22 summarize the frequency and confidence scale ratings assigned to the preschoolers in the two skill groups. Due to the fact that the less-skilled children often did not use some of the equipment, the cells in their sections are often unfilled. Thus, regular chi square statistical techniques could not be used. However, a frequency analysis of the Confidence Scale results shows that the majority of children in the higher skilled group were performing adequately or confidently on the six pieces of equipment. In contrast, the less-skilled preschoolers were predominately rated as Hesitant or Fearful. The same pattern also emerged from an analysis of the Frequency Scale data.

Table 21

Frequency Distribution of Confidence Scale Ratings for Skill Groups 1 and 2 on the Best Items

| Items | Skill Group 1 | | | | Skill Group 2 | | | |
|---|---|---|---|---|---|---|---|---|
| | C | A | H | F | C | A | H | F |
| Wooden Climber | 39 | 29 | 11 | 4 | 1 | 2 | 2 | 4 |
| Spiral Slide | 19 | 16 | 3 | 0 | 0 | 0 | 3 | 1 |
| Swinging Bridge | 21 | 24 | 9 | 2 | 0 | 0 | 1 | 2 |
| Standard Swings | 27 | 22 | 8 | 8 | 0 | 0 | 0 | 3 |
| Metal Frame | 27 | 14 | 6 | 1 | 0 | 0 | 2 | 0 |
| High Slide | 37 | 28 | 9 | 5 | 0 | 0 | 1 | 3 |
| Total | 170 | 133 | 46 | 20 | 1 | 2 | 9 | 13 |
| % | 46.0 | 36.0 | 12.5 | 5.4 | 4.0 | 8.0 | 36.0 | 52.0 |

Note. C = Confident; A = Adequate; H = Hesitant; F = Fearful

Table 22

Frequency Distribution of Frequency Scale Ratings for Skill Groups 1 and 2 on the Best Items

| | Skill Group 1 | | | | | Skill Group 2 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Items | AA | F | AOAN | O | AN | AA | F | AOAN | O | AN |
| Wooden Climber | 34 | 11 | 17 | 16 | 10 | 1 | 1 | 1 | 1 | 6 |
| Spiral Slide | 9 | 11 | 10 | 4 | 8 | 0 | 0 | 0 | 2 | 2 |
| Swinging Bridge | 10 | 10 | 12 | 12 | 16 | 0 | 0 | 1 | 1 | 2 |
| Standard Swings | 30 | 6 | 8 | 7 | 27 | 0 | 0 | 0 | 0 | 6 |
| Metal Frame | 13 | 12 | 6 | 9 | 23 | 0 | 0 | 0 | 2 | 3 |
| High Slide | 13 | 8 | 14 | 17 | 36 | 0 | 0 | 0 | 0 | 7 |
| Total | 109 | 58 | 67 | 65 | 120 | 1 | 1 | 2 | 6 | 26 |
| % | 26.0 | 13.8 | 15.9 | 15.5 | 28.6 | 2.7 | 2.7 | 5.5 | 16.6 | 72.2 |

Note. AA = Almost Always; F = Frequently; AOAN = As Often As Not; O = Occasionally; AN = Almost Never

These results from Tables 21 and 22 provide some indication of the value of the Preschool Playground Motor Skills Rating Scale as an initial screening device. The preschoolers rated as Hesitant and/or Fearful on Question Two of the Individual Playground Profile, who also obtain low ratings on the Preschool Playground Motor Skills Rating Scale should be referred for further gross motor assessment.

Additional information in support of this view was obtained from an analysis of the descriptors used by the day care professionals in describing the gross motor performances of the preschoolers in the two skill groups. The most frequently selected descriptors for each group are listed in Table 23.

Table 23

The Frequencies and Percentages of the Top Five Descriptors for Skill Groups 1 and 2

| | Rank Order | No. | % |
|---|---|---|---|
| Skill Group 1 | | | |
| Co-ordinated | 1 | 154 | 9.4 |
| Confident | 2 | 152 | 9.3 |
| Energetic | 3 | 136 | 8.3 |
| Controlled | 4 | 109 | 6.7 |
| Average | 5 | 102 | 6.3 |
| Skill Group 2 | | | |
| Cautious | 1 | 22 | 13.8 |
| Unsteady | 2 | 17 | 10.7 |
| Nervous | 3 | 16 | 10.1 |
| Tense | 4 | 15 | 9.4 |
| Awkward | 5 | 13 | 8.2 |

Note. Skill group 1 frequencies based on 1630 responses; skill group 2 frequencies based on 159 responses.

The words used to describe Skill Group One and Two suggest that the gross motor confidence of these children on the playground was very different. The use of the words cautious, unsteady, nervous, tense and awkward demonstrated that the gross motor performances of these children was of concern to the raters. It should be noted that the day care professionals in this study rarely used these terms to describe the preschoolers in Skill Group One. This suggests that there are very clear differences in the gross motor performances of these two groups of children.

Post-observational Interview data were available on eight of the ten less-skilled preschoolers (there was no interview data collected for one subject, the other was a "marker"). As reported in Table 24, the majority of these children were from immigrant families, played by themselves and climbed stairs by marking time. From the interviews, it appears that there were no other common factors which may have influenced the gross motor playground performances of the less-skilled preschoolers.

In summary, the following picture of the less-skilled preschoolers emerged. They infrequently used the high slide, spiral slide, standard swings, wooden climber, metal frame climber and swinging bridge. However, when they did choose to play on these pieces of playground equipment, their confidence was predominantly rated as Fearful or Hesitant. The descriptors selected by the raters to describe these less-skilled preschoolers' gross motor performances reveal that these children were very apprehensive. Anecdotal information collected by the Post-observational Interviews points to the fact that not only were the

Table 24

Interview Data for Skill Group Two

| Ethnic Background | | Family Status | | Physical Problems | | Health | |
|---|---|---|---|---|---|---|---|
| Canadian | 2 | One Parent | 3 | Yes | 1 | Healthy | 7 |
| Non-Canadian | 6 | Two Parents | 5 | No | 7 | Sickly | 1 |

| Birth Order | | Height | | Weight | | Tricycles | |
|---|---|---|---|---|---|---|---|
| Only | 4 | Over | 0 | Over | 3 | Yes | 5 |
| Youngest | 2 | Average | 7 | Average | 4 | No | 1 |
| Other | 2 | Under | 1 | Under | 1 | Not known | 2 |

| Play | | Fine Motor | | Language Delay | |
|---|---|---|---|---|---|
| Solitary | 7 | Concern | 4 | Yes | 3 |
| Group | 1 | No Concern | 4 | No | 5 |

| Jumping | | Rebounder | | Stairs | |
|---|---|---|---|---|---|
| Yes | 0 | Often | 2 | Marking time | 6 |
| Cautiously | 4 | Seldom | 4 | Alternating feet | 0 |
| No | 1 | No | 0 | Not known | 2 |
| Not known | 3 | Not known | 2 | | |

majority of these preschoolers from immigrant families but that they often played alone. Also when climbing stairs, they were at an early stage of skill acquisition.

Even though the interrater agreement result on the initial screening question was low, it still was quite effective in identifying preschoolers who require further assessment. The results from the Preschool Playground Motor Skills Rating Scale and the Post-observational Interviews support the conclusion that these children would benefit from further assessment.

## Summary Discussion

As the purpose of this study was to develop, implement and evaluate a screening device, the findings have aided in the evaluation of the Preschool Playground Motor Skills Rating Scale. The Individual Playground Profile, the Post-observational Interviews and the Rating Scale Evaluation Questionnaire all collected data that were also useful for this evaluation. Their findings have been reported and discussed separately in this chapter.

In conclusion, as noted in the above results and discussions, the rating of the gross motor playground skills of preschoolers has a number of inherent problems attached to it. The variety of playground equipment the children use, the wide diversity of the preschoolers' gross motor proficiency, the variability in the recognizable features that can be observed between different playground skills and the training and experience of the day care professionals rating them are

all factors that influence the rating process. By improving the rating process, the accuracy of the screening results will also improve.

Thus, the above results and discussions have illustrated that there are certain criteria required to design a good rating scale that screens for physically awkward preschoolers. First, an ecologically valid rating scale helps to overcome the unique problems in screening preschoolers. As the skills are performed within the playground context, the results are close to true performance levels (Gallahue, 1983). Second, it is important that the playground items included in the rating scale are ones which most three and four year olds select and use over long periods of time. Third, the rating scale should contain a limited number of items. This would allow raters to be specifically trained to recognize the key features of each skill and the child's degree of control while executing each skill. By following these suggestions, the Preschool Playground Motor Skills Rating Scale could be substantially improved; it is hoped that more accurate screening for physically awkward three- and four-year-old preschoolers would result.

# CHAPTER V

# CONCLUSIONS AND RECOMMENDATIONS

## Conclusions

As a result of developing, implementing and evaluating the Preschool Playground Motor Skills Rating Scale, the following conclusions are made.

The Preschool Playground Motor Skills Rating Scale with the aid of the Individual Playground Profile, were able to select a group of three- and four-year-old preschoolers who were not adequately performing gross motor playground skills and were considered to require further assessment. This was a heterogeneous group with both ages and sexes represented. The number of preschoolers selected by this process fell within the expected incidence range for physical awkwardness (Gubbay, 1975; Keogh et al., 1979; Stott et al., 1972).

It is concluded that the training session and the observational period are essential to the use of the Preschool Playground Motor Skills Rating Scale and the Individual Playground Profile. The training session enabled the raters to familiarize themselves with the screening devices and also provided them with the opportunity to clarify any of their problems or concerns. The observational period was necessary as it provided raters with the opportunity to observe "their" preschoolers

before rating took place. This is a key factor in acquiring accurate ratings (Thorndike & Hagen, 1977).

It is also concluded that the design of the Preschool Playground Motor Skills Rating Scale was beneficial to the screening process. Based on the research done by Griffin and Keogh (1982), both frequency and confidence scales were included for each skill. It is important to include both these scales as more detailed information is collected on the gross motor playground skills of the children. This is advantageous to the screening of preschoolers as the more information obtained, the less likelihood of misidentification (Kamuer & Jedrysek, 1982; Solnit, 1976).

Conclusions based upon the findings of the Best Items suggested that there are certain aspects of gross motor skills which enable relatively untrained observers to rate more accurately. Firstly, the raters need plenty of time to observe the skill. Thus, an observational period before rating is necessary. However, playground equipment that preschoolers frequently use provides additional observational time. This is advantageous for the raters. Secondly, the raters require an easily observable and recognizable skill in order to facilitate accurate rating.

The conclusions made, based upon the findings from the Rating Scale Evaluation Questionnaire, are that the Preschool Playground Motor Skills Rating Scale is easy to understand and use. However, it cannot be completed quickly. The rating scale requires a reasonable amount of time to fill it out. The rating process would benefit from a shortened rating scale using the Best Items as the quantity of ratings would be

reduced. Also, the raters would be encouraged to be more "interested" in their ratings and this would result in more accurate ratings (Guilford, 1954). The training session and observational period were also beneficial to the rating process: raters felt confident in their ratings. A final conclusion is that in the day care professionals in this study were a highly trained and qualified group, especially for Alberta (Price Waterhouse Associates, 1982).

Findings from the Individual Playground Profile indicate that the descriptors can be a useful tool in the evaluation of preschoolers' gross motor skills. They can assist the screening process as, firstly, the number of descriptors is not restricted, and therefore, a more global picture of the child's skill level is ascertained. Secondly, the descriptors can be used as an indicator of a child's gross motor skill level as the raters appear to select certain words to describe specific skill levels.

Even though they use similar equipment, ensure ready accessibility and are used by many day cares, playgrounds were still a limiting factor for this study. The variations within each type of equipment and the differences among playgrounds made it more difficult to obtain high interrater agreements. However, some conclusions are drawn about the features that appear to make some pieces of playground equipment better to choose than others when observing the gross motor skills of three and four year olds. First, the skill required to use the equipment, must be recognizable to novice observers (e.g. swinging). Second, the equipment should encourage preschoolers of varying skill levels to use it. Thus,

a wide range of skill levels will be seen by the raters. Third, the children can exert some measure of control over their performances on the equipment (e.g. slowing their sliding by sticking out their legs). Fourth, that there is an opportunity to observe the preschooler using the equipment, i.e. their performance is not finished too quickly or their performance is repeated often.

Some suggestions can be made about the development of an effective rating scale based on the findings of this study. When designing a rating scale, its purpose to detect children performing at the "bottom" end, consideration should be given to ceiling effects. Attention was first drawn to this fact by the day care professionals themselves during post-observational interviews with the researcher. They had noted that some children were not being challenged by the playground equipment and thus, these children opted for playing elsewhere on the playground. The concern expressed by the day care professionals was that these preschoolers did not appear on the Preschool Playground Motor Skills Rating Scale to be as skilled as they actually were. Thus, ceiling effects had occurred and therefore, some of the highly skilled children could not be accurately rated. Provision for a wider range in the rating scale so that the ratings could be spread out would allow these preschoolers to be more precisely rated.

## Recommendations to the Study

There are specific recommendations for modifications to the individual data collection instruments used by this study and they are listed below.

Preschool Playground Motor Skills Rating Scale

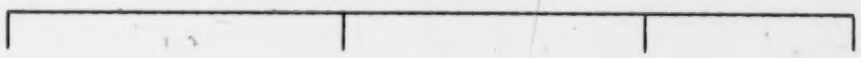
1. In order to make the rating scale a short-form screening device it should be shortened to only include the Best Items. As preschoolers frequently select and use these pieces of playground equipment, raters will be given plenty of opportunity to observe the children's gross motor skills. As a result, this will encourage more accurate ratings.
2. The descriptive phrases for Fearful on the confidence scale need to be changed. Some raters took the second phrase, "Did not complete skill on own," out of context. As a result, if assistance was required, the child was rated Fearful. Therefore, the second phrase should be deleted and replaced by "Cannot complete the skill." Also, a discussion of this concern should be entered into the Instructions for the Use of the Rating Scale so that raters would be informed.
3. As previously discussed in Chapter III, the results of Simpson (1963) and Stone and Johnson (1959) research into the use of frequency words were used as guidelines for the selection of the cues for the frequency scale. Also mentioned in Chapter III, was the recommendation of Champrey (cited in Guilford, 1954) to vary the cues used at the different positions on the rating scale. Due to a printing error, this did not occur. Almost Always should have been Practically Always on the frequency scale. Although there were no rating difficulties in using Almost Always, changing it to

the original, Practically Always, would meet the criteria stated by the above researchers.

Individual Playground Profile

1. Question One, (How much fun does this child appear to have while playing on the playground?), should be deleted and replaced by a question pertaining to play skills. The new question should be designed as follows:

When playing on the playground, does this child usually play with



4 or more children | 2 - 3 children | 1 child | alone

This recommendation is based on post-observational interview data for the less-skilled preschoolers (Skill Group Two) which show a general tendency to playing alone. In addition, Keogh (1982) suggests that the assessment of children with movement problems should begin with their personal-social comfort in movement situations. This revision would help with this assessment. Also, whether a child is playing alone or in a group is a more observable trait than how much fun s/he is having. An overt trait is one of the recommendations of Gronlund (1971), Guilford (1954), and Thorndike and Hagen (1977) to encourage effective ratings. Therefore, this new question can be more objectively and accurately rated.

2. The scale for Question Two, (On the playground, this child's gross motor performance is), should be extended after Confident to include the cue Very Confident. Ceiling effects would be reduced by implementing this change.

3. Question Three (In comparison to the children in your Day Care this child's gross motor performance on the playgrouns is ?) should be deleted and another question about how the child climbed stairs should be added to the profile. Post-observational data revealed that stair climbing appeared to be one skill which the less-skilled preschoolers (Skill Group Two) were not as proficient at as their peers. Silva (1981) developed a quick two-item screening test for three year olds; stair climbing was one of the items. The child had to be able to walk up five stairs alone although could hold onto a bannister and/or take two steps per stair (marking time). Thus, the question is phrased so that information on foot placement and whether adult assistance is required can be obtained.

Does this child climb stairs alone by placing

| | | | | |
|---|---|---|---|---|
| 1 foot per stair | 1 foot per stair and uses railing | 2 feet per stair | 2 feet per stair and uses railing | OR needs to hold adult hand |

4. The Individual Playground Profile should not be used alone but in conjunction with the Preschool Playground Motor Skills Rating Scale. The training session and the observational period required by the rating scale provided the raters with the opportunity to

observe the children. This process aided the raters in making the more generalized ratings required by the profile.

Post-observational Interviews

1. The interviews were based upon the ratings by the day care professionals and therefore, the preschoolers discussed were not independently selected. This was done in order to understand how and what the raters had rated at the "bottom" end of the scale. However, to provide more data that could increase the internal validity of the rating scale, post-observational interviewing could be done by either randomly sampling the subjects or including all of them.
2. If time is available, interviewing should be conducted after some exploratory statistical analysis has been done. This would remove the subjectivity of selection and therefore, eliminate some false positives. Also this would be a cost-efficient measure.

Implications from the Study

1. At three and four years of age, not all children are motorically active. This study found that there are some who do not adequately perform gross motor playground skills and who, therefore, require further assessment.
2. Descriptive graphic rating scales can be employed for preschool gross motor screening. However, a training session and an observational period are necessary to increase the accuracy of the ratings (Thorndike & Hagen, 1977).

3. Qualified day care professionals are able to recognize certain aspects of gross motor skills which allow them to administer short-form screening devices. However, more formal training on preschool gross motor development would increase their sensitivity to the subtleties of gross motor skills. This, in turn, would increase the accuracy of their ratings.
4. Day care professionals are a resource which researchers have not tapped extensively (Snow, 1983). Their close, daily contact with preschoolers during varied situations (e.g. eating, sleeping, playing, dressing), puts them in an advantageous position to observe many aspects of child development. Their first-hand knowledge could be very helpful to researchers interested in child development.

Recommendations for Further Study

Wilson, (cited in Frankenburg, 1975), defines the validity of a screening test as "the frequency with which the result of the test is confirmed by the diagnosis" (p.26). As the incidence of physical awkwardness is only known for school-aged children and there are tests available for this age group, a longitudinal study of the subjects, in particular, Skill Group Two, would enable the predictive validity of this study to be assessed.

Another reason for a longitudinal study are the findings of Silva and Ross (1980). They expressed concern about the risks of early labelling of preschoolers with gross motor delays. From their research

they found two types of delays: children whose gross motor skills "caught up" by five years of age (transitory) and those whose did not (stable). A longitudinal study of Skill Group Two would confirm if these findings could be generalized to all preschoolers.

## References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# APPENDIX A

## PRESCHOOL PLAYGROUND MOTOR SKILLS RATING SCALE

| 1 | | 2 | 3 | | | | | | 4 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EQUIPMENT AVAILABILITY | | NAMES OF CHILDREN | DOES THE CHILD CHOOSE TO SLIDE | | | | | | IS THE CHILD'S PERFORMANCE ON THE SLIDE(S) | | | | |
| YES | NO | | ALMOST ALWAYS almost every/ every day plays on this equip-ment | FRE-QUENTLY most days plays on this equip-ment | AS OFTEN AS NOT some days does/ does not play on this equip-ment | OCCASION-ALLY few days plays on this equip-ment | ALMOST NEVER very few/no days plays on this equip-ment | NO oppor-tunity to observe | CONFIDENT performs skill easily & with assurance for age | ADEQUATE performs skill satis-factorily for age | HESITANT cautious and/or careful but completes the skill | FEARFUL freezes and/or cries. Does not complete skill on own | NO oppor-tunity to observe |
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| EQUIPMENT AVAILABILITY | | NAMES OF CHILDREN | DOES THE CHILD CHOOSE TO SLIDE on the LOW SLIDE | | | | | | IS THE CHILD'S PERFORMANCE ON THE LOW SLIDE | | | | |
| LOW SLIDE | | | ALMOST ALWAYS almost every/ every day plays on this equipment | FREQUENTLY most days plays on this equipment | AS OFTEN AS NOT some days does/ does not play on this equipment | OCCASIONALLY few days plays on this equipment | ALMOST NEVER very few/no days plays on this equipment | NO opportunity to observe | CONFIDENT performs skill easily & with assurance for age | ADEQUATE performs skill satisfactorily for age | HESITANT cautious and/or careful but completes the skill | FEARFUL freezes and/or cries. Does not complete skill on own | NO opportunity to observe |
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| EQUIPMENT AVAILABILITY | | NAMES OF CHILDREN | DOES THE CHILD CHOOSE TO SLIDE on the HIGH SLIDE | | | | | | IS THE CHILD'S PERFORMANCE ON THE HIGH SLIDE | | | | |
| HIGH SLIDE | | | ALMOST ALWAYS almost every/ every day plays on this equipment | FREQUENTLY most days plays on this equipment | AS OFTEN AS NOT some days does/ does not play on this equipment | OCCASIONALLY few days plays on this equipment | ALMOST NEVER very few/no days plays on this equipment | NO opportunity to observe | CONFIDENT performs skill easily & with assurance for age | ADEQUATE performs skill satisfactorily for age | HESITANT cautious and/or careful but completes the skill | FEARFUL freezes and/or cries. Does not complete skill on own | NO opportunity to observe |
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| EQUIPMENT AVAILABILITY<br>SPIRAL SLIDE | | NAMES OF CHILDREN | DOES THE CHILD CHOOSE TO<br>SLIDE on the SPIRAL SLIDE | | | | | | IS THE CHILD'S PERFORMANCE ON THE<br>SPIRAL SLIDE | | | | |
| YES | NO | | ALMOST ALWAYS<br>almost every/ every day plays on this equipment | FREQUENTLY<br>most days plays on this equipment | AS OFTEN AS NOT<br>some days does/ does not play on this equipment | OCCASIONALLY<br>few days plays on this equipment | ALMOST NEVER<br>very few/no days plays on this equipment | NO<br>opportunity to observe | CONFIDENT<br>performs skill easily & with assurance for age | ADEQUATE<br>performs skill satisfactorily for age | HESITANT<br>cautious and/or careful but completes the skill | FEARFUL<br>freezes and/or cries. Does not complete skill on own | NO<br>opportunity to observe |
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| EQUIPMENT AVAILABILITY: TUBE SLIDE | NAMES OF CHILDREN | DOES THE CHILD CHOOSE TO SLIDE on the TUBE SLIDE | | | | | | IS THE CHILD'S PERFORMANCE ON THE TUBE SLIDE | | | | |
| YES | NO | ALMOST ALWAYS almost every/ every day plays on this equip-ment | FRE-QUENTLY most days plays on this equip-ment | AS OFTEN AS NOT some days does/ does not play on this equip-ment | OCCASION-ALLY few days plays on this equip-ment | ALMOST NEVER very few/no days plays on this equip-ment | NO oppor-tunity to observe | CONFIDENT performs skill easily & with assurance for age | ADEQUATE performs skill satis-factorily for age | HESITANT cautious and/or careful but completes the skill | FEARFUL freezes and/or cries. Does not complete skill on own | NO oppor-tunity to observe |
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| EQUIPMENT AVAILABILITY | | NAMES OF CHILDREN | DOES THE CHILD CHOOSE TO CLIMB | | | | | | IS THE CHILD'S PERFORMANCE ON THE CLIMBING APPARATUS | | | | |
| YES | NO | | ALMOST ALWAYS almost every/ every day plays on this equip-ment | FRE-QUENTLY most days plays on this equip-ment | AS OFTEN AS NOT some days does/ does not play on this equip-ment | OCCASION-ALLY few days plays on this equip-ment | ALMOST NEVER very few/no days plays on this equip-ment | NO oppor-tunity to observe | CONFIDENT performs skill easily & with assurance for age | ADEQUATE performs skill satis-factorily for age | HESITANT cautious and/or careful but completes the skill | FEARFUL freezes and/or cries. Does not complete skill on own | NO oppor-tunity to observe |
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| EQUIPMENT AVAILABILITY | | NAMES OF CHILDREN | DOES THE CHILD CHOOSE TO CLIMB on the WOODEN CLIMBER | | | | | | IS THE CHILD'S PERFORMANCE ON THE WOODEN CLIMBER | | | | |
| WOODEN CLIMBER | | | ALMOST ALWAYS almost every/ every day plays on this equip-ment | FRE-QUENTLY most days plays on this equip-ment | AS OFTEN AS NOT some days does/ does not play on this equip-ment | OCCASION-ALLY few days plays on this equip-ment | ALMOST NEVER very few/no days plays on this equip-ment | NO oppor-tunity to observe | CONFIDENT performs skill easily & with assurance for age | ADEQUATE performs skill satis-factorily for age | HESITANT cautious and/or careful but completes the skill | FEARFUL freezes and/or cries. Does not complete skill on own | NO oppor-tunity to observe |
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| EQUIPMENT AVAILABILITY | | NAMES OF CHILDREN | DOES THE CHILD CHOOSE TO CLIMB on the METAL FRAME | | | | | | IS THE CHILD'S PERFORMANCE ON THE METAL FRAME | | | | |
| METAL FRAME | | | ALMOST ALWAYS almost every/ every day plays on this equipment | FREQUENTLY most days plays on this equipment | AS OFTEN AS NOT some days does/ does not play on this equipment | OCCASIONALLY few days plays on this equipment | ALMOST NEVER very few/no days plays on this equipment | NO opportunity to observe | CONFIDENT performs skill easily & with assurance for age | ADEQUATE performs skill satisfactorily for age | HESITANT cautious and/or careful but completes the skill | FEARFUL freezes and/or cries. Does not complete skill on own | NO opportunity to observe |
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| EQUIPMENT AVAILABILITY: TUBE CLIMBER | | NAMES OF CHILDREN | DOES THE CHILD CHOOSE TO: CLIMB on the TUBE CLIMBER | | | | | | IS THE CHILD'S PERFORMANCE ON THE: TUBE CLIMBER | | | | |
| YES | NO | | ALMOST ALWAYS almost every/ every day plays on this equipment | FREQUENTLY most days plays on this equipment | AS OFTEN AS NOT some days does/ does not play on this equipment | OCCASIONALLY few days plays on this equipment | ALMOST NEVER very few/no days plays on this equipment | NO opportunity to observe | CONFIDENT performs skill easily & with assurance for age | ADEQUATE performs skill satisfactorily for age | HESITANT cautious and/or careful but completes the skill | FEARFUL freezes and/or cries. Does not complete skill on own | NO opportunity to observe |
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| EQUIPMENT AVAILABILITY | | NAMES OF CHILDREN | DOES THE CHILD CHOOSE TO | | | | | | IS THE CHILD'S PERFORMANCE ON THE | | | | |
| TIRES | | | CLIMB on TIRES | | | | | | TIRES | | | | |
| YES | NO | | ALMOST ALWAYS almost every/ every day plays on this equipment | FREQUENTLY most days plays on this equipment | AS OFTEN AS NOT some days does/ does not play on this equipment | OCCASIONALLY few days plays on this equipment | ALMOST NEVER very few/no days plays on this equipment | NO opportunity to observe | CONFIDENT performs skill easily & with assurance for age | ADEQUATE performs skill satisfactorily for age | HESITANT cautious and/or careful but completes the skill | FEARFUL freezes and/or cries. Does not complete skill on own | NO opportunity to observe |
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| EQUIPMENT AVAILABILITY | | NAMES OF CHILDREN | DOES THE CHILD CHOOSE TO SWING | | | | | | IS THE CHILD'S PERFORMANCE ON THE SWING(S) | | | | |
| YES | NO | | ALMOST ALWAYS almost every/ every day plays on this equip-ment | FRE-QUENTLY most days plays on this equip-ment | AS OFTEN AS NOT some days does/ does not play on this equip-ment | OCCASION-ALLY few days plays on this equip-ment | ALMOST NEVER very few/no days plays on this equip-ment | NO oppor-tunity to observe | CONFIDENT performs skill easily & with assurance for age | ADEQUATE performs skill satis-factorily for age | HESITANT cautious and/or careful but completes the skill | FEARFUL freezes and/or cries. Does not complete skill on own | NO oppor-tunity to observe |
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| EQUIPMENT AVAILABILITY | | NAMES OF CHILDREN | DOES THE CHILD CHOOSE TO SWING on the BABY SWING | | | | | | IS THE CHILD'S PERFORMANCE ON THE BABY SWING | | | | |
| YES | NO | | ALMOST ALWAYS almost every/ every day plays on this equipment | FREQUENTLY most days plays on this equipment | AS OFTEN AS NOT some days does/ does not play on this equipment | OCCASIONALLY few days plays on this equipment | ALMOST NEVER very few/no days plays on this equipment | NO opportunity to observe | CONFIDENT performs skill easily & with assurance for age | ADEQUATE performs skill satisfactorily for age | HESITANT cautious and/or careful but completes the skill | FEARFUL freezes and/or cries. Does not complete skill on own | NO opportunity to observe |
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| EQUIPMENT AVAILABILITY | | NAMES OF CHILDREN | DOES THE CHILD CHOOSE TO SWING on the STANDARD SWING | | | | | | IS THE CHILD'S PERFORMANCE ON THE STANDARD SWING | | | | |
| STANDARD SWING | | | ALMOST ALWAYS almost every/ every day plays on this equipment | FREQUENTLY most days plays on this equipment | AS OFTEN AS NOT some days does/ does not play on this equipment | OCCASIONALLY few days plays on this equipment | ALMOST NEVER very few/no days plays on this equipment | NO opportunity to observe | CONFIDENT performs skill easily & with assurance for age | ADEQUATE performs skill satisfactorily for age | HESITANT cautious and/or careful but completes the skill | FEARFUL freezes and/or cries. Does not complete skill on own | NO opportunity to observe |
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| EQUIPMENT AVAILABILITY | NAMES OF CHILDREN | DOES THE CHILD CHOOSE TO SWING on the VERTICAL TIRE | | | | | | IS THE CHILD'S PERFORMANCE ON THE VERTICAL TIRE | | | | |
| * VERTICAL TIRE * | | ALMOST ALWAYS almost every/ every day plays on this equipment | FREQUENTLY most days plays on this equipment | AS OFTEN AS NOT some days does/ does not play on this equipment | OCCASIONALLY few days plays on this equipment | ALMOST NEVER very few/no days plays on this equipment | NO opportunity to observe | CONFIDENT performs skill easily & with assurance for age | ADEQUATE performs skill satisfactorily for age | HESITANT cautious and/or careful but completes the skill | FEARFUL freezes and/or cries. Does not complete skill on own | NO opportunity to observe |
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| EQUIPMENT AVAILABILITY | NAMES OF CHILDREN | DOES THE CHILD CHOOSE TO SWING on the HORIZONTAL TIRE | | | | | | IS THE CHILD'S PERFORMANCE ON THE HORIZONTAL TIRE | | | | |
| *HORIZONTAL* TIRE | | ALMOST ALWAYS almost every/ every day plays on this equip-ment | FRE-QUENTLY most days plays on this equip-ment | AS OFTEN AS NOT some days does/ does not play on this equip-ment | OCCASION-ALLY few days plays on this equip-ment | ALMOST NEVER very few/no days plays on this equip-ment | NO oppor-tunity to observe | CONFIDENT performs skill easily & with assurance for age | ADEQUATE performs skill satis-factorily for age | HESITANT cautious and/or careful but completes the skill | FEARFUL freezes and/or cries. Does not complete skill on own | NO oppor-tunity to observe |
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| EQUIPMENT AVAILABILITY | | NAMES OF CHILDREN | DOES THE CHILD CHOOSE TO | | | | | | IS THE CHILD'S PERFORMANCE ON THE | | | | |
| * BALANCING APPARATUS * | | | BALANCE | | | | | | BALANCING APPARATUS | | | | |
| YES. | NO | | ALMOST ALWAYS almost every/ every day plays on this equipment | FREQUENTLY most days plays on this equipment | AS OFTEN AS NOT some days does/ does not play on this equipment | OCCASIONALLY few days plays on this equipment | ALMOST NEVER very few/no days plays on this equipment | NO opportunity to observe | CONFIDENT performs skill easily & with assurance for age | ADEQUATE performs skill satisfactorily for age | HESITANT cautious and/or careful but completes the skill | FEARFUL freezes and/or cries. Does not complete skill on own | NO opportunity to observe |
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| EQUIPMENT AVAILABILITY: SWINGING BRIDGE | | NAMES OF CHILDREN | DOES THE CHILD CHOOSE TO: BALANCE on the SWINGING BRIDGE | | | | | | IS THE CHILD'S PERFORMANCE ON THE: SWINGING BRIDGE | | | | |
| YES | NO | | ALMOST ALWAYS almost every/ every day plays on this equip-ment | FRE-QUENTLY most days plays on this equip-ment | AS OFTEN AS NOT some days does/ does not play on this equip-ment | OCCASION-ALLY few days plays on this equip-ment | ALMOST NEVER very few/no days plays on this equip-ment | NO oppor-tunity to observe | CONFIDENT performs skill easily & with assurance for age | ADEQUATE performs skill satis-factorily for age | HESITANT cautious and/or careful but completes the skill | FEARFUL freezes and/or cries. Does not complete skill on own | NO oppor-tunity to observe |
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| 1 EQUIPMENT AVAILABILITY — WOODEN PLANKS | | 2 | 3 DOES THE CHILD CHOOSE TO — BALANCE on the WOODEN PLANKS | | | | | | 4 IS THE CHILD'S PERFORMANCE ON THE — WOODEN PLANKS | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| YES | NO | NAMES OF CHILDREN | ALMOST ALWAYS almost every/ every day plays on this equipment | FREQUENTLY most days plays on this equipment | AS OFTEN AS NOT some days does/ does not play on this equipment | OCCASIONALLY few days plays on this equipment | ALMOST NEVER very few/no days plays on this equipment | NO opportunity to observe | CONFIDENT performs skill easily & with assurance for age | ADEQUATE performs skill satisfactorily for age | HESITANT cautious and/or careful but completes the skill | FEARFUL freezes and/or cries. Does not complete skill on own | NO opportunity to observe |
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| EQUIPMENT AVAILABILITY | | NAMES OF CHILDREN | DOES THE CHILD CHOOSE TO RUN | | | | | | IS THE CHILD'S PERFORMANCE ON THE RUNNING | | | | |
| YES | NO | | ALMOST ALWAYS almost every/ every day plays on this equipment | FREQUENTLY most days plays on this equipment | AS OFTEN AS NOT some days does/ does not play on this equipment | OCCASIONALLY few days plays on this equipment | ALMOST NEVER very few/no days plays on this equipment | NO opportunity to observe | CONFIDENT performs skill easily & with assurance for age | ADEQUATE performs skill satisfactorily for age | HESITANT cautious and/or careful but completes the skill | FEARFUL freezes and/or cries. Does not complete skill on own | NO opportunity to observe |
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# APPENDIX B

## INSTRUCTIONS FOR USE OF THE

## PRESCHOOL PLAYGROUND MOTOR SKILLS RATING SCALE

# INSTRUCTIONS FOR THE USE OF THE RATING SCALE

The purpose of this rating scale is to formulate an evaluation of a child's gross motor performance during free play on the City of Edmonton's playground equipment. As indoor equipment and facilities vary tremendously between day cares, the City of Edmonton playgrounds were chosen as they are "free" and accessible to all day cares.

Studies have shown that young children find it difficult to perform for strangers. Also their gross motor performances are closer to their true performance level, if they are observed and rated in their natural settings. As a child care worker, you are part of the children's daily surroundings. Furthermore, you can observe unobtrusively and therefore, give a more accurate rating of their gross motor skills. Consequently, this rating scale has been devised so that children's gross motor skills during free play at the playground can be easily rated by you.

To help with this task, follow the guidelines listed below when using the rating scale. Please make sure that you have the rating scale in front of you while reading the following instructions.

The definitions associated with each heading on the rating scale are as follows, reading from left to right on the scale:

Heading 1 EQUIPMENT AVAILABILITY

a. Please indicate which pieces of playground equipment are available at "your" city playground.

b. If available, place an X in the YES box and proceed to evaluate each child.

c. If unavailable, place an X in the NO box and proceed to the next listed skill.

NOTE: Only evaluate the child's gross motor performance on the listed skill if the equipment is present at your local playground.

Heading 2 NAMES OF CHILDREN

Please rate the children in the order listed on each page.

Heading 3 DOES THE CHILD CHOOSE TO?

Indicate how frequently you think the child chooses to use the listed skill at the City playground. Check only one of the following ratings:

ALMOST ALWAYS = almost every or every day plays on this equipment

FREQUENTLY = most days plays on this equipment

AS OFTEN AS NOT = some days does or does not play on this equipment

OCCASIONALLY = few days plays on this equipment

ALMOST NEVER = very few or no days plays on this equipment

Almost Never--should be used:

a. when a child plays for very few or no days on a piece of equipment.

b. when a child simply gets onto a piece of equipment but does not perform the skill.

c. when a child asks for and/or needs help from day care staff to perform the listed skill. You should only rate those skills that a child chooses and performs during free play time on the City playground.

d. when a child does not perform the listed gross motor skills but plays in the sand, watches others, helps others on the equipment, etc. These are not gross motor performances. Therefore, the pieces of equipment that are available to the child would be rated as "Almost Never" being used by him/her.

No opportunity to observe--should be used for:

a. absences

If a child is absent for the whole rating period, write an a under no opportunity to observe.

You should only rate children whom you have seen on the playground a minimum of two times. If a child does not meet this criterion, write an a under No opportunity to observe.

b. exceptional circumstances

When you feel very uncomfortable and/or uncertain about making a judgment about a child's performance, place a question mark (?) under No opportunity to observe.

Heading 4 IS THE CHILD'S PERFORMANCE ON?

Please indicate how confidently you think the child typically performs the listed playground skill for his/her age. Check only one of the following ratings:

CONFIDENT = performs the skill easily and with assurance for age

ADEQUATE = performs the skill satisfactorily for age

HESITANT = performs cautiously and/or carefully but completes the skill

FEARFUL = freezes and/or cries. Does not complete the skill on own

GENERAL GUIDELINES

1. Rate only one skill at a time. Proceed to the next subsequent skill only when all of the children have been rated on that listed skill. When rating, consider each child and decide:

   a. how often the child chooses to use the skill on different playground apparatus by checking one of the ratings in Heading 3.

   b. what the child's typical performance of the skill is by checking one of the ratings in Heading 4.

2. Fill out the rating scale by yourself. Do not compare or discuss your ratings with your colleagues as an independent rating of the children is essential.

3. Overall Assessment of Sliding, Climbing, Swinging, Balancing, Running

   These ratings are based on your overall general impression of the child's frequency of choosing these basic playground skills and how well these motor performances are executed according to age level.

If you have any difficulties or questions in using the rating scale, please do not hesitate to call me at 483-3245 (after 3:30 p.m.).

Thank you,

Barbara Paul

# APPENDIX C

# OBSERVATIONAL GUIDELINES

## OBSERVATIONAL GUIDELINES

As child care professionals, you have a great deal of knowledge and experience in observing young children. Consequently the rating scale has been designed to take this into account and is to be used as a tool to refine and guide your existing observational skills.

The purpose of the rating scale is to help you record the general impression of each child's gross motor performance that you have developed from observing them over an extended period of time. The impressions that you have developed prior to the formal observational period can certainly be taken into account, but careful observation of the children may well sharpen your rating of them.

In gross motor free play, children's performances are often executed quickly. They run and dart from one piece of equipment to another. This can make observing frustrating and difficult. Below are a few key guidelines to help you overcome some of these problems.

1. Observe only for the first twenty minutes on the City playground.

2. For the first few minutes, try to locate where "your" children are. Then begin to observe and get a general impression of their overall motor performances.

3. Make a conscious effort to carefully observe all "your" children each trip to the City playground, making sure that no child has been inadvertently overlooked.

4. Each time you are at the City playground, be aware of what equipment "your" children use and generally how often they use it. You should also carefully watch them when they are actively playing on a piece of equipment; this will better enable you to more accurately rate their quality of performance on it.

5. Do not change your "normal" playground behavior. If a child needs help, a hug, praise and encouragement, please give it, as you should not become a passive or recording observer due to the use of the rating scale i.e. you are to be yourself.

# APPENDIX D

# TRAINING SESSION MATERIALS

## FREQUENCY AND EQUIPMENT AVAILABILITY TRAINING QUIZ

Please indicate the EQUIPMENT AVAILABILITY category for the following playground equipment for the City playground that you have used for the three week period.

1. We have a metal climbing frame at our day care. At the City playground, there was not one present.

2. On the City's playground that you used, there were baby swings, standard swings, a low slide, swinging bridge and wooden climber. What equipment can you rate your children on?

3. At the City playground that you have been using for the three week period, there were no swings. Can you rate "your" children on their swinging skill?

4. There is a high slide at the City playground but it is very unstable. Therefore the day care has made a rule that no children may use it. Can you rate "your" children on it?

Please indicate the FREQUENCY category for the following gross motor free play situations that have occurred over a three week period on the City playground.

1. Each time you arrived at the playground, John rushed over and played on the high slide.

2. Sarah was absent for several of your trips to the playground. The times when she was present, you observed her playing on the baby swings.

3. You observed Mary some days playing on the wooden planks at the City playground.

4. There is one day when you are not sure if Paul played on the tire climber but the other days you are sure he did.

5. Most days Judy used the vertical tire swings and the standard swings.

6. When I think back over the three week period, I cannot remember Jennifer using the horizontal tire swings.

7. On trips to the playground, Ross played some days on the tube slide and other days on the spiral slide.

8. For approximately half of the total days spend on the playground, Kim played on the high slide.

9. Some days Sara chose to play on the tube climber.

10. Mark was absent for the three week period.

11. David was present for only one trip to the playground; he was away the rest of the time.

12. Mary would ask for help to mount and be pushed on the standard swings.

13. Neil sat on the platform of the wooden climber and watched the others play each time you went to the playground.

14. Julie always played in the sand underneath the wooden climber.

15. Anne loved to push others on the baby swings but she did not swing on them herself. She did this every time you went to the playground.

FREQUENCY AND EQUIPMENT AVAILABILITY TEST QUIZ

Please answer the questions below. They cover a three week period when your day care used a City playground. The frequency categories are listed to help you when answering questions 3-16.

| ALMOST ALWAYS | FRE-QUENTLY | AS OFTEN AS NOT | OCCASION-ALLY | ALMOST NEVER | NO |
|---|---|---|---|---|---|
| almost every/ every day plays on this equip-ment | most days plays on this equip-ment | some days does/ does not play on this equip-ment | few days plays on this equip-ment | very few/no days plays on this equip-ment | oppor-tunity to observe |

1. Your day care has an outside low slide which the children use daily. There is not one at the City playground. Can you rate "your" children on the low slide?

   ANS: _____

2. At the City playground that you have been using for the three week period, there is no metal climbing frame nor standard swings. Can you rate "your" children on these?

   ANS: _____

3. Judy has been away for the whole three week period. How should she be rated?

   ANS: _____

4. Michael was only present for one trip to the City playground. How should he be rated?

   ANS: _____

5. Each trip to the playground Sarah stood by the horizontal tire swings and watched the other children playing on them. How should her frequency on the horizontal tire swings be rated?

   ANS: _____

6. Daniel chose to play most days on the swinging bridge. How should his frequency on the swinging bridge be rated?

   ANS: _____

7. On all the trips to the City playground, Anne chose to play on the tube slide. How should her frequency on the tube slide be rated?

ANS: _____

8. Some days Jack played on the tire climber; other days he did not. How should his frequency on the tire climber be rated?

ANS: _____

9. There are very few days that you can remember Janet playing on the spiral slide. How should her frequency on the spiral slide be rated?

ANS: _____

10. Adrian always asked for help to mount and dismount the wooden climber. How should his frequency on the wooden climber be rated?

ANS: _____

11. Mary always played in the sand underneath the high slide but did not slide on it. How should her frequency on the high slide be rated?

ANS: _____

12. On your trips to the City playground, there were few days that Trevor played on the swinging bridge and the wooden planks. How should his balancing frequency be rated.

ANS: _____

13. You remember Cheryl using the baby swings at your day care's playground but not at the City playground. How should her frequency on the baby swings be rated?

ANS: _____

14. On your trips to the City playground, you never saw Bruce run. How should his running frequency be rated?

ANS: _____

15. Jonathan played one day on the swinging bridge, low slide and wooden climber. The next day, he played on the swinging bridge, high slide and wooden climber. The other days, he played on the high slide, baby swings and wooden climber. How should his frequency on the wooden climber be rated?

ANS: _____

# APPENDIX E

## INDIVIDUAL PLAYGROUND PROFILE

# INDIVIDUAL PLAYGROUND PROFILE

NAME: _____

1. How much fun does this child appear to have while playing on the playground?

| lots of fun | some fun | little fun | very little fun |
|---|---|---|---|

2. On the playground this child's gross motor performance is

| confident | adequate | hesitant | fearful |
|---|---|---|---|

3. In comparison to the other children in your Day Care this child's gross motor performance on the playground is

| well above average | above average | average | below average | well above average |
|---|---|---|---|---|

4. What word(s) would you use to describe the gross motor performance of this child? (Circle as many words as are applicable.)

| | | | |
|---|---|---|---|
| awkward | acceptable | skilled | tense |
| clumsy | passable | excellent | confident |
| poor | very poor | average | good |
| very good | above average | highly skilled | daring |
| uncontrolled | nervous | relaxed | unsteady |
| inventive | controlled | flowing | jerky |
| co-ordinated | unco-ordinated | energetic | cautious |

# APPENDIX F

## RATING SCALE EVALUATION QUESTIONNAIRE

## RATING SCALE EVALUATION QUESTIONNAIRE

1. How many times during the week do <u>you</u> take the children to the City playground during the month of:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| April | 0 | 1 | 2 | 3 | 4 | 5 | over 5 times |
| May | 0 | 1 | 2 | 3 | 4 | 5 | over 5 times |
| June | 0 | 1 | 2 | 3 | 4 | 5 | over 5 times |
| July | 0 | 1 | 2 | 3 | 4 | 5 | over 5 times |
| August | 0 | 1 | 2 | 3 | 4 | 5 | over 5 times |
| September | 0 | 1 | 2 | 3 | 4 | 5 | over 5 times |
| October | 0 | 1 | 2 | 3 | 4 | 5 | over 5 times |

Please circle the number that corresponds with each month.

COMMENTS:

2. How many times during the observational period of the rating scale did you take the children to the City Playground?

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1st week: | 0 | 1 | 2 | 3 | 4 | 5 | over 5 times |
| 2nd week: | 0 | 1 | 2 | 3 | 4 | 5 | over 5 times |
| 3rd week: | 0 | 1 | 2 | 3 | 4 | 5 | over 5 times |
| 4th week: | 0 | 1 | 2 | 3 | 4 | 5 | over 5 times |
| 5th week: | 0 | 1 | 2 | 3 | 4 | 5 | over 5 times |

Please circle the number that corresponds with each week.

COMMENTS:

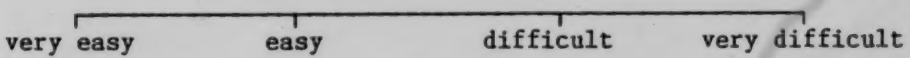
3. Do you use other facilities where the children can play on outdoor playground equipment? If yes, please explain.

YES NO

COMMENTS:

4. What training and how many years of working experience have you had in early childhood education?

5. How easy was it to use the rating scale?

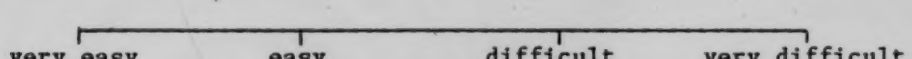



COMMENTS:

6. How easy was it to understand the category descriptors (e.g. "Frequently") in the rating scale section "does the child choose to?"

COMMENTS:

7. How easy was it to understand the category descriptors (e.g. "Confident") in the rating scale section "is the child's performance on the?"




COMMENTS:

8. How easy was it to understand the instructions on how to use the rating scale?

very easy | easy | difficult | very difficult

COMMENTS:

9. What was the average length of time (in minutes) it took you to rate all the children on <u>one</u> of the free play playground skills (eg. low slide)?

5 10 15 20 25 30 over 30 minutes

COMMENTS:

10. Did the total time spent filling out the rating scale seem . . .

too long | long | about right | short | too short

COMMENTS:

11. Was the training session held several weeks prior to filling out the rating scale . . .

very beneficial | beneficial | unnecessary | detrimental | very detrimental

COMMENTS:

12. How confident are you that your ratings are accurate?

very confident | confident | unsure | very unsure

COMMENTS:

13. What were the key cues that you used to rate the children's gross motor performances? e.g. speed (slides down the slide quickly).

14. Please add any additional comments or questions that you feel would help me to design a better rating scale, writing on the back if necessary.

THANK YOU.

# APPENDIX G

## LETTERS TO DAY CARE PARENTS, DIRECTORS AND STAFF

Letter to Parents

February 17, 1984

Dear Parents:

As part of their daily work, day care professionals routinely observe and assess the children in their care. At the present time, however, there are no observational guidelines of playground skills to further assist them in observing and assessing three and four year olds.

Your child's day care has been selected to participate in a study of the free play gross motor playground skills of three and four year old preschoolers. The staff will be observing and assessing these children as part of their standard assessment procedures. Helping to establish guidelines will enable the day care professionals to provide you with a more detailed and accurate observation and assessment of your child.

As part of this day care's spring and summer routine of regularly using the playground, the staff will aid in the development and verification of the observational assessment scale. No program changes are required and no children will be required to do anything but "free play" at the playground during their regular visits. All information will be held in strict confidence with students and staff remaining anonymous. Your day care Director has approved this project.

If you do not wish your child to participate in this study, please notify your Director.

Thank you for your cooperation.

Sincerely,

Barbara Paul

Letter to Day Care Directors

Dear

Enclosed please find one copy of each of the following:

* The Playground Rating Scale

* Instructions for the Use of the Rating Scale

* Observational Guidelines

Please encourage your staff to read through this material prior to the training session which will be held on at p.m.

I would also appreciate it if you would ask your staff to bring a pen or pencil to the training session.

Thank you very much for the list of children and staff and your continued support for this study.

Sincerely,

Barbara Paul

First Letter to Day Care Staff

Dear

Enclosed below is a list of the children that you are being asked to observe and later rate, i.e. "your" children. These are children that you care for daily and therefore, know well.

I will be returning in approximately three weeks' time with more copies of the rating scales. On them will be listed "your" children's names. You are to rate these children's gross motor playground skills and return the filled out scales to your Director as soon as possible.

Thank you for your participation and help in this study. If you have any concerns and/or questions please contact me at 483-3245 (after 3:30 p.m.).

Sincerely,

Barbara Paul

## Second Letter to Day Care Staff

Enclosed please find a copy of each of the following:

* Rating Scale--complete with "your" children's names on it
* Instructions for the Use of the Rating Scale
* Individual Playground Profile
* Rating Scale Evaluation Questionnaire.

When filling out the rating scale please try to do the following:

* Read through the instructions again especially noting how to correctly use the categories Almost Never and No opportunity to observe. As a general guideline the category No opportunity to observe is only used for absences and exceptional circumstances; all other gross motor playground skills can be rated by the scale.

* Rate each child in the order that they are listed on each page.

* Fill out the rating scale by yourself, i.e. do not consult with other staff members.

* Try to fill out the rating scale, individual playground profile and evaluation questionnaire as soon as possible and hand them in to your Director using the brown envelope provided.

I cannot thank you enough for all the time and effort that you have put into this research project. I could not have managed without your support and that of your Director's. Your enthusiastic response has made my work so much easier and very pleasant. THANK YOU.

Yours sincerely,

Barbara Paul

# APPENDIX H

## PRESCHOOL PLAYGROUND MOTOR SKILLS RATING SCALE FREQUENCY DATA

Table H-1

Frequency Data: Results and Percentages for the Ratings on the Frequency Scale

| | ENA | | NOTO | | AN | | O | | AOAN | | F | | AA | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Low Slide | 59 | 21 | 3 | 1 | 48 | 17 | 44 | 16 | 50 | 18 | 50 | 18 | 23 | 8 |
| High Slide | 38 | 14 | 9 | 3 | 80 | 29 | 50 | 18 | 41 | 15 | 27 | 10 | 31 | 11 |
| Spiral Slide | 168 | 60 | 6 | 2 | 21 | 8 | 15 | 5 | 20 | 7 | 22 | 8 | 26 | 9 |
| Tube Slide | 216 | 78 | 5 | 2 | 17 | 6 | 17 | 6 | 10 | 4 | 3 | 1 | 10 | 4 |
| Wooden Climber | 32 | 11 | 4 | 1 | 34 | 12 | 37 | 13 | 42 | 15 | 33 | 12 | 96 | 34 |
| Metal Frame | 99 | 36 | 8 | 3 | 67 | 24 | 28 | 10 | 29 | 7 | 31 | 11 | 25 | 9 |
| Tube Climber | 223 | 80 | 14 | 5 | 13 | 5 | 6 | 2 | 10 | 4 | 4 | 1 | 8 | 3 |
| Tires | 92 | 33 | 7 | 2 | 81 | 29 | 32 | 11 | 30 | 11 | 18 | 6 | 18 | 6 |
| Baby Swings | 96 | 35 | 7 | 2 | 72 | 26 | 37 | 13 | 20 | 7 | 15 | 5 | 28 | 10 |
| Strd. Swings | 95 | 34 | 3 | 1 | 58 | 21 | 27 | 10 | 21 | 8 | 17 | 6 | 57 | 20 |
| Vert. Swings | 155 | 56 | 17 | 6 | 54 | 19 | 16 | 6 | 14 | 5 | 12 | 4 | 10 | 4 |
| Horiz. Swings | 254 | 92 | 3 | 1 | 7 | 2 | 6 | 2 | 2 | 0 | 3 | 1 | 3 | 1 |
| Bridge | 137 | 49 | 6 | 2 | 25 | 9 | 26 | 9 | 24 | 9 | 33 | 12 | 27 | 10 |
| Planks | 96 | 35 | 10 | 4 | 72 | 26 | 50 | 18 | 27 | 10 | 14 | 5 | 9 | 3 |

Note. Frequencies based on 275-278 responses. ENA = Equipment not available; NOTO = No opportunity to observe; AN = Almost never; O = Occasionally; AOAN = As often as not; F = Frequently; AA = Almost always.

Table H-2

Frequency Data: Results and Percentages for the Ratings on the Confidence Scale

| | ENA[a] | | NOTO[b] | | Fearful | | Hesitant | | Adequate | | Confident | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % | No. | % |
| Low Slide | 59 | 21 | 7 | 2 | 6 | 2 | 16 | 6 | 57 | 21 | 130 | 47 |
| High Slide | 38 | 14 | 35 | 13 | 16 | 6 | 35 | 13 | 62 | 27 | 88 | 32 |
| Spiral Slide | 168 | 61 | 11 | 4 | 4 | 1 | 19 | 7 | 34 | 12 | 41 | 15 |
| Tube Slide | 216 | 78 | 6 | 2 | 7 | 2 | 8 | 3 | 22 | 8 | 19 | 7 |
| Wooden Climber | 32 | 12 | 14 | 5 | 11 | 4 | 39 | 14 | 78 | 28 | 102 | 37 |
| Metal Frame | 99 | 36 | 45 | 16 | 10 | 4 | 23 | 8 | 42 | 15 | 58 | 21 |
| Tube Climber | 223 | 80 | 15 | 5 | 5 | 2 | 14 | 5 | 9 | 3 | 12 | 4 |
| Tires | 92 | 33 | 42 | 15 | 11 | 4 | 25 | 9 | 58 | 21 | 50 | 18 |
| Baby Swings | 96 | 35 | 43 | 16 | 13 | 5 | 8 | 3 | 44 | 16 | 72 | 26 |
| Standard Swings | 95 | 34 | 33 | 12 | 23 | 8 | 19 | 7 | 47 | 17 | 60 | 22 |
| Vertical Swings | 155 | 56 | 39 | 14 | 19 | 7 | 26 | 9 | 24 | 9 | 15 | 5 |
| Horizontal Swings | 254 | 92 | 9 | 3 | 1 | 0 | 1 | 0 | 8 | 3 | 4 | 1 |
| Bridge | 137 | 49 | 13 | 5 | 7 | 2 | 21 | 8 | 47 | 17 | 52 | 19 |
| Planks | 96 | 35 | 30 | 11 | 15 | 5 | 33 | 12 | 62 | 22 | 41 | 15 |

Note. Frequencies based on 274-278 responses.

[a]ENA = equipment not available; [b]NOTO - no opportunity to observe.

# APPENDIX I

## INDIVIDUAL PLAYGROUND PROFILE FREQUENCY DATA FOR QUESTIONS 1-3

Table I-1

Frequency of "Fun" Ratings by Raters 1 and 2

| Question 1 | Rater 1 | Rater 2 |
|---|---|---|
| Lots | 68 | 72 |
| Some | 38 | 38 |
| Little | 7 | 3 |
| Very Little | 2 | 2 |
| Total | 115 | 115 |

Table I-2

Frequency of "Gross Motor Confidence on the Playground" Ratings by Raters 1 and 2

| Question 2 | Rater 1 | Rater 2 |
|---|---|---|
| Confident | 54 | 56 |
| Adequate | 41 | 42 |
| Hesitant | 13 | 15 |
| Fearful | 5 | 2 |
| Total | 113 | 115 |

Table I-3

Ferequency of "Comparison of Gross Motor Performance" Ratings by Raters 1 and 2

| Question 3 | Rater 1 | Rater 2 |
|---|---|---|
| Well above average | 8 | 4 |
| Above average | 28 | 30 |
| Average | 59 | 66 |
| Below average | 15 | 10 |
| Well below average | 4 | 5 |
| Total | 114 | 115 |